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# USAID/ENERGY POLICY PROGRAM QUARTERLY PROGRESS REPORT OCTOBER-DECEMBER 2014



**January 2015**

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

# USAID/ENERGY POLICY PROGRAM

## QUARTERLY PROGRESS REPORT: OCT-DEC 2014

Contract No: AID-EPP-I-00-03-00004

Order No: AID-391-TO-12-00002

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**Cover Photo:** Transmission and generation rehabilitation and handover of live-line maintenance tools and vans.

**Credit:** Muhammad Zafar Taj

### **DISCLAIMER**

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# ACRONYMS

AEAI	Advanced Engineering Associates International
DGPC	Directorate General Petroleum Concessions
DISCO	Distribution Company
E&P	Exploration and Production
ECC	Economic Coordination Committee
ECIL	Engineering Consultants International (Pvt.) Limited
EETPL	Engro Elengy Terminal Pakistan Limited
EMMP	Environmental Mitigation and Monitoring Plan
EPP	Energy Policy Program
FARA	Fixed Amount Reimbursable Agreement
FY	Fiscal Year
GENCO	Generation Company
GHCL	GENCO Holding Company Limited
GOP	Government of Pakistan
GTPS	Guddu Thermal Power Station
JTPS	Jamshoro Thermal Power Station
KPK	Khyber Pakhtunkhwa
kV	Kilovolts, 1000 volts, unit of electric potential (voltage)
LNG	Liquefied Natural Gas
LSA	LNG Services Agreement
MOF	Ministry of Finance
MPNR	Ministry of Petroleum and Natural Resources
MSPA	Master Sales and Purchase Agreement
MTPS	Muzaffargarh Thermal Power Station
MW	Megawatt, unit of electrical power, 1 million watts,
MWP	Ministry of Water and Power
NEPRA	National Electric Power Regulatory Authority
NPCC	National Power Control Center
NTDC	National Transmission and Despatch Company
O & M	Operations and Maintenance
PEPCA	Pakistan Petroleum and Production Companies Association
PESCO	Peshawar Electricity Supply Company
PIL	Project Implementation Letter
PO	Purchase Order
PowerSIM	Power System Integrated Model
PPA	Power Purchase Agreement
PQA	Port Qasim Authority
PTF	Power Transformer
PTS	Petroleum Technology Solutions
RFP	Request for Proposal
SBLC	Standby Letter of Credit
SCADA	Supervisory Control and Data Acquisition
SMS	Secured Metering System
SSGC	Sui Southern Gas Company
USAID	United States Agency for International Development
WAPDA	Water and Power Development Authority

# EXECUTIVE SUMMARY

During the last quarter of 2014 (October-December), the USAID-funded Energy Policy Program (EPP) continued to pursue the mission objective of providing support to the Government of Pakistan (GOP) to help add more megawatts to the national power grid, decrease losses, and increase cost recovery. During the quarter, EPP maintained its focus on activities in two thematic areas: investing in infrastructure (supporting power generation, power transmission, and related fuel supply infrastructure) and policy reform.

EPP continued its monitoring and implementation support for Government-to-Government energy projects. These projects include rehabilitation of three thermal power plants (Muzaffargarh, Guddu, and Jamshoro) and two hydro power plants (Tarbela and Mangla). Construction of two multipurpose dams (Gomal Zam Dam and Satpara Dam) has already been completed. The total United States Government (USG) funding for these projects is \$316.7 million, which will result in an estimated gain of 953 megawatts for Pakistan's power system. As of December 2014, \$151.49 million has been disbursed to the implementing partners of the Government of Pakistan (GOP), resulting in the addition of 1013 megawatts to the power system, which will supply electricity to 9.38 million people.

Direct beneficiaries of EPP's generation and transmission efforts currently stand at 14.83 million people or 8.3% of the population, while financial performance of the energy sector entities has improved by \$626 million.

Repair and maintenance of the hydro power dams continued with the commissioning and installation of a variety of essential components and equipment, which augment the functioning and operation of the power systems. Additional activities to enhance the performance efficiency as well as capacity building of the Generation Companies (GENCOs) and Water and Power Development Authority (WAPDA) were carried out through discussions of USAID support for improving technical and commercial performance of the GENCOs. Efforts are geared toward sustaining the megawatt gains achieved, thereby extending the operating life of the plants. Three training sessions on best practices in hydro operations and maintenance (O&M) were conducted with 71 engineers newly trained. The trained engineer's will be able to identify deficiencies in their current maintenance practices and increase efficiency of the plants.

While numerous milestones were achieved during the reported period, some activities were stalled at WAPDA's due to settlement of terms and conditions with bidders, security concerns for foreign experts, and shutdowns in the summer season.

EPP achieved substantial and highly visible results through the replacement of equipment that resulted in power generation capacity and efficiency improvements. As part of its focus on improving the commercial operations of the GENCOs, EPP is providing support to the GENCOs to conduct NEPRA-compliant heat-rate tests in order to obtain a revised tariff from NEPRA, which will reflect the actual costs incurred by GENCOs in producing electricity and increase annual revenues through fuel saving of \$70 million per annum.

During the current quarter, \$4.67 million was disbursed to GOP, out of which \$2.93 million was disbursed at the Jamshoro, \$0.17 million at Muzaffargarh, and \$1.57 million at Guddu Thermal Power Stations. EPP also supported USAID on the amendment request made by GENCOs and Tarbela to extend the completion date of the projects.

EPP continued to provide technical assistance to the GOP to support energy sector restructuring and reform, including more effective market policies, better targeting of subsidies, and capacity building of key institutions (e.g., policy makers, planners, regulators, facility managers, and project implementers). EPP's efforts are geared towards improved policy implementation that will help ensure greater efficiency and higher quality customer service, better sector and business

management, increased political support for reforms, and eventually full cost recovery leading to sustainability.

EPP developed a Sector Integrated Model (PowerSIM), a Microsoft Excel-based policy analysis tool to assist GOP in the quantitative analysis of the power sector. The tool is designed to help GOP in evaluating policy operations and measures aimed at improving the financial efficiency and sustainability of the country's power sector. It is also being used to determine the financial implications of various scenarios for allocating Liquefied Natural Gas (LNG) to the power sector. The Ministry of Water and Power (MWP) will be able to determine what happens to the power sector with additional gas supply as the tool allows policy makers to ascertain how small changes impact consumer prices, circular debt, cost of generation, and fuel use. It is worth mentioning that the Planning Commission (PC) has adopted PowerSIM and it is becoming an accepted GOP tool. PC plans to utilize PowerSIM for forecasting and analyzing the impact of policy decisions and for the five-year plans. EPP held meetings with Joint Secretary (Policy) to discuss future trainings and implementation of PowerSIM.

EPP delivered a gender assessment to USAID, which will be followed by the development of a gender strategic plan and a public forum for enhanced gender integration in the energy sector in Pakistan. The assessment determined a baseline of current gender equality practices. The associated gender strategic plan is aimed at providing realistic and effective recommendations and activities for promoting gender equality initiatives. To promote student recruitment and female participation, EPP trained 15 females during the Best Practices in Hydro O&M program, with 20% female participation in one training session. The program continues to improve female participation figures in training activities as a standard practice.

EPP continued with its focus on strengthening the power transmission network, and on capacity building of power sector entities involved in transmission, with a particular emphasis on the Peshawar Electricity Supply Corporation (PESCO) and the National Transmission and Despatch Company (NTDC). By the end of the reporting quarter, 426 megawatts of transmission throughput capacity had been added to PESCO's and NTDC's network as a result of USAID/EPP's assistance. EPP's ongoing support to PESCO is geared towards improving and upgrading their transmission system by reducing transmission losses, improving reliability, and adding more megawatt throughput to the transmission systems of Pakistan.

# HIGHLIGHTS

This Energy Policy Program (EPP) Quarterly Progress Report covers the period of October 1 through December 31, 2014. Highlights and achievements during this reporting period are summarized in Table I.

Table I: Quarterly Highlights – Impacts, Issues, and Proposed Activities

## Component 1 Project Monitoring & Implementation

- **Guddu:** EPP provided support to USAID in assessing Guddu's additional funding request of \$9.64 million for rehabilitation of GT-9, which will add another 150 MW. EPP certified claims of \$1.57 million against PIL item#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, EPP also supported USAID on the time extension request made by Guddu to complete the installation of the remaining equipment's.
- **Jamshoro:** EPP provided USAID figures for greenhouse gases (GHG) emission reduction at three Public sector Generation Companies (GENCOs - Jamshoro, Guddu and Muzaffargarh). The reduction in GHG of about 1,166,691 tCO<sub>2</sub>e is made possible after the improvement in heat rates due to rehabilitation work. EPP certified claims of \$ 2.93 million against three PIL items that are item# 6, 11 & 17. These items are critical for the sustainability of power plant operations. EPP also supported USAID on the time extension request made by Jamshoro to complete the installation of the remaining equipment's.
- **Mangla:** EPP submitted Environmental Monitoring and Audit Report to USAID. Environmental monitoring is carried out to ensure that the rehabilitation work is in compliance with the Government of Pakistan (GOP) and United States Government (USG) regulations as recommended in the approved EMMP.
- **Muzaffargarh:** EPP certified the claim of \$166,140 with USAID against Project Implementation Letter (PIL) Item 27 – Modification of Excitation System for Units 5 & 6. This item is critical for the sustainability of power plant operations. EPP also supported USAID on the time extension request made by Muzaffargarh to complete the installation of the remaining equipment's
- **Tarbela:** EPP discussed procurement status of the remaining equipment under Tarbela Phase I and advised Water and Power Development Authority (WAPDA) to submit a claim of \$300,000 as installation of digital governors has been completed on all 10 units. EPP also supported USAID on the time extension request made by WAPDA/Tarbela to complete the installation of the remaining equipment's.

## Component 2 Policy and Reform

- **PowerSIM Training:** A meeting was held with Joint Secretary (Policy) to discuss future training/implementation of PowerSIM. Two nominated Section Officers will undergo further trainings particularly in the application of PowerSIM through policy briefs and other analysis. Trainings will be scheduled after assistance to Planning Commission on 11<sup>th</sup> Five-Year Plan is complete. EPP helped facilitate the Ministry of Petroleum and Natural Resources (MPNR) with preparation of the Revised Implementation Agreement initialed between Port Quasim Authority (PQA) and ETPL.
- **MPNR:** Foreign consultants (Granada) have also commenced support from the Houston home office by providing comments on Qatargas draft SPA. Task Order and NOCs for foreign consultants are in progress.
- **MPNR:** USAID conveyed its approval for inclusion of additional 14 confidential wells in the ongoing Shale Gas Resource Assessment Study upon MPNR request.
- **MPNR:** FGE participated in the meeting of GOP's Liquefied Natural Gas (LNG) Price Negotiation Committee via Skype on December 29, 2014. The Committee received status updates regarding G2G negotiations with Qatar and Malaysia, and MSPA for procuring spot

cargoes. The way forward for the procurement process was also discussed.

- **Diagnostic Analysis/Review of Regulatory Framework of National Electric Power Regulatory Authority (NEPRA):** Work continued on the revised final draft of the report regarding Diagnostic Analysis/Review of Regulatory Framework of NEPRA, being prepared by the Economic Reforms Unit (ERU) of Ministry of Finance (MOF), in pursuance of the instructions of Council of Common Interest (CCI).

### Component 3 New Projects, Planning and Development

- USAID met with EPP to review cost estimates for the Kaitu Weir project and to identify issues for discussion with the WAPDA project team in a meeting scheduled for early next month.
- EPP also assisted USAID in its effort to initiate a Training Needs Assessment at WAPDA.
- EPP continued assistance to USAID in securing cost information from WAPDA for the Kaitu Weir Project.

### Component 4 New Activities

- **PESCO:** A 20/26MW power transformer was successfully replaced and commissioned by EPP team at Chakdara 132 kV Grid Station. The replacement makes 26 MW of transformation capacity reliable in PESCO's network.
- **PESCO:** Technical audits of all grid stations were completed. Final reports pertaining to 82 of 82 grid stations have been compiled (100% completed).
- **PESCO:** Forty-nine cooling fans have been installed at Hangu, Shabqadar, Lachi, Tangi, Kohat, Shahi Bagh and Mattani 132 kV grid stations, making 49 out of 129 (38% completed). To date, the second batch of EPP's cooling fan program has added 23.3 MWs of throughput capacity to PESCOs grid.
- **PESCO:** Two capacitor banks, one each at Jahangira 132 kV GS and Bannu 132kV GS, were commissioned successfully. They will enhance the throughput capacity of PESCO's network by 30 MWs and reduce losses by 4.1 MW.
- **NTDC:** Technical audit of 41 of 46 grid stations have been completed (89%). All 39 technical audits of grid stations in the original scope of work have now been completed. The remaining 7 grid stations were recently commissioned and later added; two of which have already been audited. Final reports pertaining to 34 of 46 grid stations have been compiled (74% completed).
- **NTDC:** The extension of NTDC's SMS project to DISCOs through installation of SAN server and displays has completed. The system will help NTDC on commercial and operational fronts.

# PROGRESS IN NUMBERS

Indicator	Unit	LOP Target	Achieved in FY 2015 Q1	Total Achieved as of FY 2015 Q1	LOP % Achieved as of FY 2015 Q1
I.a: GWh of energy sold	GWh	7880	402.2	8,627	109%
I.1.a: Number of beneficiaries with improved energy services due to United States Government assistance	Individuals	13,624,226	734,605.2	14,834,354	109%
I.1.b: GWh of energy availability	GWh	7880	402.2	8,627	109%
I.1.c: MW available to meet power sector demand as a result of USG assistance	MW	1,303	57.4	1,439	110%
I.1.1.a: MW of electrical power added or saved as a result of USG improvements	MW	875	4.1	1,023	117%
I.1.1.b: Efficiency of thermal power plant tests completed	No.	3	0	2	67%
I.1.1.c: Number of USG supported installations and operations and maintenance improvements	No.	181	20	126	70%
I.1.1.d: Number of transmission bottlenecks resolved	No.	121	12	96	79%
I.1.4.a: Public and private funds leveraged by the USG for energy infrastructure projects	US\$	193.5 million	0	38.5 Million	20% <sup>1</sup>
I.2.1.a: Number of key policies and regulations in various stages	No.	12	8	19	158%
I.2.2.a: Number of policies following international best practices	No.	6	0	2	33%
I.2.2.b: Number of board recommendations following international best practices	No.	4	0	0	0%
I.2.3.a: Number of best-practice driven systems created, improved, and implemented	No.	10	0	5	50%
I.2.4.b: Number of public forums resulting from USG assistance in which government officials and citizens interact	No.	12	0	5	42%

<sup>1</sup> EPP recently changed the I.1.4.a Life of Program target from US \$48.5 million to \$193.5 million as per recommendation of MSI's data quality assessment. This consists of Gomal Zam funds (\$33.5 million), Mangla funds (\$15 million), and LNG fund (\$145 million), which consists of the 6 month charter for tugboats (\$5 million), FSRU charter (\$20 million), and infrastructure of jetty and pipelines (\$120 million).

## Component Summary

Indicator	Unit	Component	LOP Target	Achieved in FY2015 Q1	Total Achieved as of FY 2015 Q1	LOP % Achieved as of FY2015 Q1
I.1.a: Number of beneficiaries with improved energy services due to United States Government assistance	Individuals	<b>Total</b>	<b>13,624,226</b>	<b>734,605.2</b>	<b>14,834,354</b>	<b>109%</b>
		I-Generation	7,993,106	0	9,382,406	117%
		IV-Transmission Throughput Capacity	5,477,544	682,133.4	5,322,688	97%
		IV – Transmission Added/Saved	153,576	52,471.8	129,260	84%
I.1.b: GWh of energy availability	GWh	I & IV	7880	402.3	8,628	109%
		I-Generation	4,796	0	5,642.29	118%
		IV-Transmission Throughput Capacity	2999.4	373.5	2,914.6	97%
		IV – Transmission Added/Saved	84	28.7328	70.7328	84%
I.1.c: MW available to meet power sector demand as a result of USG assistance	MW	I & IV	1,303	57.4	1,439.00	110%
		I-Generation	863	0	1,013	117%
		IV-Transmission Throughput Capacity	428	53.3	415.9	97%
		IV – Transmission Added/Saved	12	4.1	10.1	84%
I.1.1a: MW of electrical power added or saved as a result of USG improvements	MW	I & IV	875	4.1	1023.1	117%
		I-Generation	863	0	1,013	117%
		IV – Transmission Added/Saved	12	4.1	10.1	84%

# PLANNED ACTIVITIES

EPP will focus on the following efforts from January 01 - March 31, 2015.

Table 2: Planned Activities

Component 1 Project Monitoring & Implementation
<ul style="list-style-type: none"> <li>• Signing of PIL for Phase-II of the Tarbela Repair and Maintenance Project.</li> <li>• Conduct heat-rate test at the Guddu power station through an independent engineering firm (Pakistan Engineering Services).</li> <li>• Certify Tarbela claim of \$300,000 on completion of installation of digital governors at all 10 units.</li> <li>• Complete amendments of Jamshoro, Muzaffargarh, Guddu, and Tarbela Activity Agreement that will extend the completion date of Jamshoro, Muzaffargarh, and Guddu for 6 months and Tarbela for a year.</li> </ul>
Component 2 Policy and Reform
<ul style="list-style-type: none"> <li>• Continue working with National Transmission and Dispatch Company (NTDC) and liaise with Ministry of Water and Power (MWP) in various tasks including Performance Contract, Strategic Business Plan, and Organizational Development</li> <li>• Schedule PowerSIM training at MWP at the request/availability of identified staff. In Phase II, the trainees will learn how to run more complex scenarios using more advanced features of PowerSIM.</li> <li>• <b>Shale Gas:</b> Continue work on Component-2 and initiate data testing of additional wells.</li> <li>• <b>Upstream Oil &amp; Gas Support:</b> Minimum reorganizational structure of Directorate General Petroleum Concessions (DGPC); report on improvement of Policies and Regulatory Framework; initiation of Request for Proposal (RFP) for Shale Gas Policy consultants; continuation of work on improvement of Model Petroleum Concession and Production Sharing Agreements; finalization of new task order to cover technical programs.</li> <li>• <b>LNG:</b> Finalization of Master Sales Purchase Agreement (MSPA); follow-up on Liquefied Natural Gas (LNG) procurement strategy and specific activities to secure commercially viable LNG cargoes by the commissioning date of the Fast Track LNG terminal; support to GOP in Government-to-Government (G2G) negotiations for LNG procurement with Qatargas and Petronas; support to PQA for monitoring construction of Enegro Elengy Terminal Pakistan Limited (EETPL) LNG Terminal and for specific LNG services; capacity building of GOP stakeholders; decision on conducting full mission bridge simulation study for PQA, and training of PQA pilots/tug masters for maneuvering of LNGCs; continuation of provision of legal support to SSGC for LSA open items; issuance of new task orders to continue support to GOP.</li> </ul>
Component 3 New Projects, Planning and Development
<ul style="list-style-type: none"> <li>• Continue support to USAID towards reviewing information and identifying and expediting next steps to move quickly towards signing a PIL.</li> </ul>
Component 4 New Activities
<ul style="list-style-type: none"> <li>• Technical audit of NTDC grid stations.</li> <li>• Delivery of IT hardware for NTDC design department.</li> <li>• Commissioning of Capacitor Bank at Tall.</li> <li>• Completion of installations for extension of SMS to DISCOs.</li> <li>• Repair of damaged Transmission Line Towers (132kV &amp; 66kV) in Khyber Pakhtunkhwa (KPK).</li> <li>• Installation and commissioning of 132/66kV power transformer at Chakdara GS.</li> </ul>

### **Cross-Cutting Activities**

- The Market Operation Exchange Visit will be conducted in January 2015. Following completion of the Exchange Visit, EPP will arrange a daylong debriefing of the trip by the participants for US Government officials in Islamabad.
- EPP will seek nominations from the remaining stakeholders for LNG Business and Management Intensive Training and after its review will obtain approval from USAID.
- EPP will obtain formal approval from NTDC and USAID for the finalized and interviewed participants for the Commercial Operations Exchange visit to the United States.
- EPP will commence the refresher course training for live line maintenance of five previously trained DISCOs. Additionally, SEPCO and MEPCO will start the 16-week course during the second quarter.

### **Communications**

- Host visible and impact-oriented events that highlight key program deliverables; and provide outreach assistance across all program components.

# PROGRAM OVERVIEW

The Energy Policy Program (EPP) is a multi-year, USAID-funded initiative to increase power generation, improve transmission and enhance cost recovery. EPP works with selected energy enterprises to assist the Government of Pakistan's sector reform efforts. The program supports the joint goals of the United States Government (USG) and the Government of Pakistan in reforming the power sector, and is designed to address Pakistan's chronic electricity shortage. EPP's activities are geared towards addressing Pakistan's energy shortfalls, a major limit to the country's economic progress. To that end, EPP implements activities that provide the people of Pakistan and its energy sector with the tools, technical support, capacity building, and stronger institutions that will promote stability, economic development, and security in the region

The program is currently in its *Integration Phase*. 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 are geared towards helping Pakistan expand its indigenous production capacity, eliminate the need for subsidies, and mitigate pressures contributing to the country's current energy crisis, including its circular debt. At the conclusion of this important program, EPP will have contributed substantially to both the immediate energy shortages, and it will have helped the country build longer-term energy sufficiency.

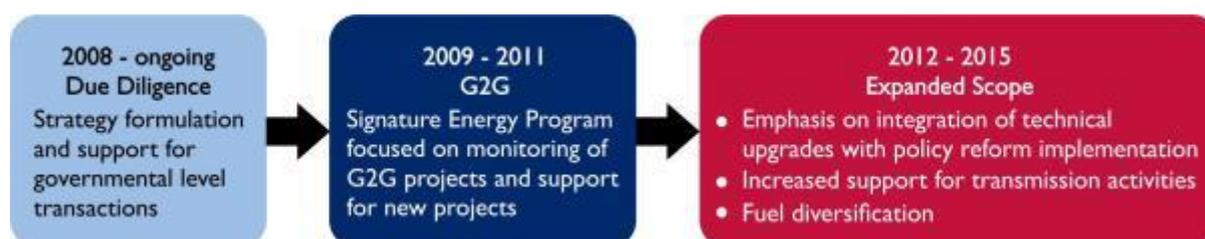


Figure 1: EPP Phases

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

**Component 1 - Monitoring and 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 the GOP. This includes monitoring and supporting timely counterpart compliance with all of the terms and conditions of FARAs, and inspection and certification of deliverables.<sup>2</sup> Specifically, EPP provides monitoring and implementation support for seven signature energy projects: four repair and maintenance projects (three GENCOs and Tarbela); two multipurpose dam completion projects (Gomal Zam and Satpara); and one dam rehabilitation project (Mangla).

**Component 2 – 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 assignment of staff to work in the offices of the requesting entity as advisors and specialized support staff.<sup>3</sup> 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 the GOP.

<sup>2</sup> C.4.2, Component One, pg. 8 of 46, Contract No: AID-EPP-I-00-03-00004

<sup>3</sup> C.4.3, Component Two, pg. 11 of 46, Contract No: AID-EPP-I-00-03-00004

**Component 3 – 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.<sup>4</sup> Specifically, EPP conducts and prepares due diligence reports on new projects under consideration for USG support in order to provide detailed information, reduce USG risk, and set a basis for creating Project Implementation Agreements for the selected projects.

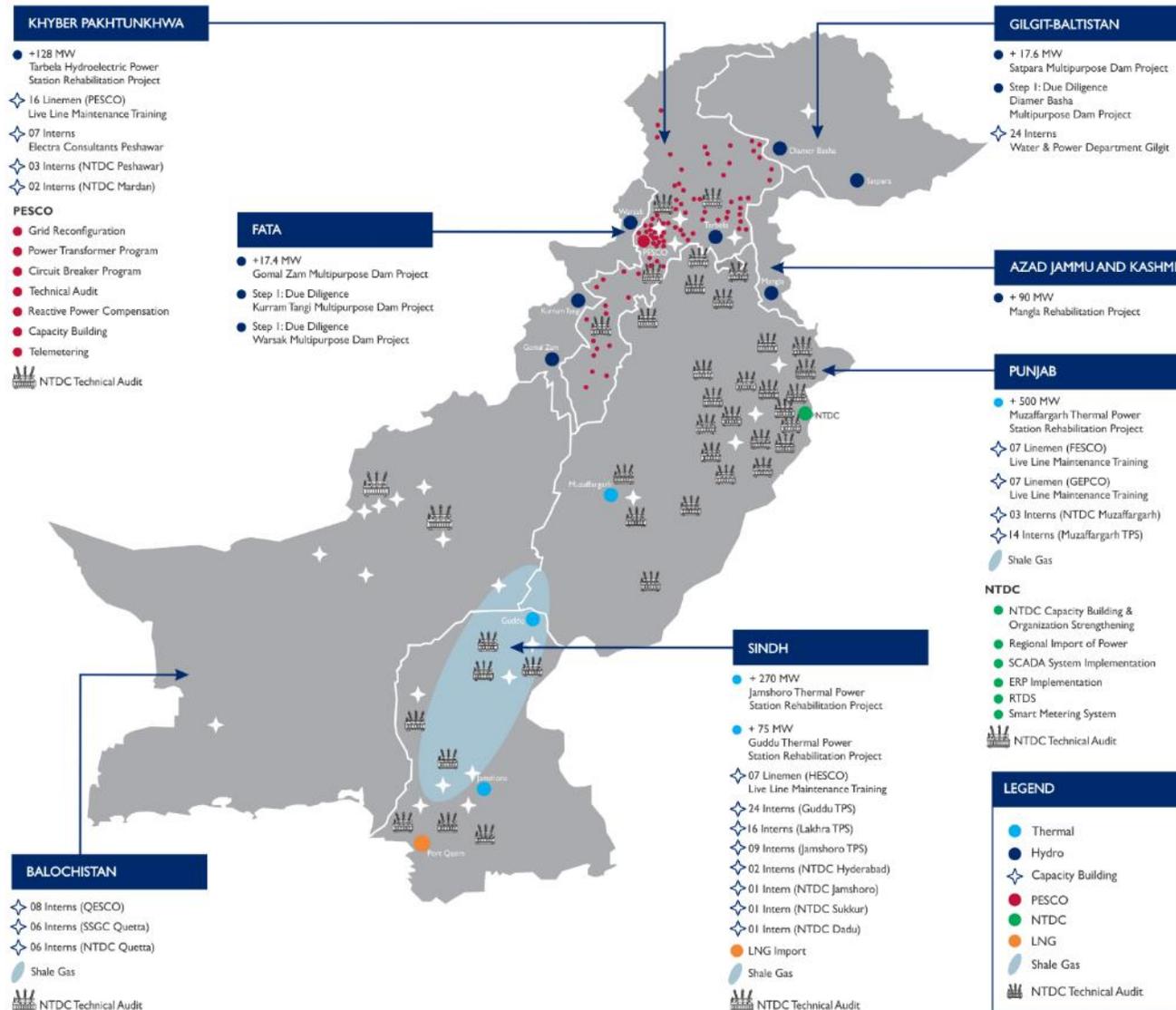
**Component 4 – New Activities:** As a result of Modification Number 2 to the EPP Task Order Award, EPP supports the following efforts: a turnaround power distribution company (DISCO); identification of new, high-impact opportunities that promote continued support for governance; live-line training for transmission linemen; technical assistance to the Ministry of Petroleum and Natural Resources (MPNR); USAID pre-approved activities, including but not limited to, Liquefied Natural Gas (LNG) oil and gas (including shale gas), and advisory services to increasing natural gas supplies for power generation); targeted assistance to the National Transmission and Dispatch Company (NTDC) and the Natural Power Control Center (NPCC) to mitigate unscheduled shortages; help generation companies (GENCOs) to improve baseline efficiency measurements and improved operations and maintenance; and deliver technical assistance efforts in support of GOP and USAID activities that promote capacity building, increased public awareness, and targeted advisory services.<sup>5</sup> EPP's capacity building program facilitates sustainability by enhancing local capability in critical areas.

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<sup>4</sup> C.4.4, Component Three, pg. 12 of 46, Contract No: AID-EPP-I-00-03-00004

<sup>5</sup> C.4.5.1, Component Four, pgs. 3-9, , Amendment/Modification No. 2 of Contract No: AID-EPP-I-00-03-00004

Figure 2: Map of EPP Activity Areas



# COMPONENT I: PROJECT MONITORING & IMPLEMENTATION

As of this reporting quarter, EPP provided monitoring and implementation support for the seven G2G Signature Energy Projects identified in the Task Order Award. These projects include rehabilitation of three Thermal power plants (Muzaffargarh, Guddu, and Jamshoro), two hydropower plants (Tarbela and Mangla), and construction of two new multipurpose dams (Gomal Zam Dam and Satpara Dam). Total USG funding for these projects is \$291.7 million (per revised agreements) that will result in an estimated gain of 953 MW for Pakistan’s national grid.

As of December 2014, \$151.49<sup>6</sup> million has been disbursed to GOP implementing partners, and 1013 MW have been added to Pakistan’s national grid. Results achieved through successful monitoring and implementation of G2G projects are illustrated in the table below:

Table 3: Results Achieved through G2G Projects

Projects	USG Funding (\$ Million)	Paid (\$ Million)	Completion Date	MW Gains/Benefits	
				Target	Achieved (Dec 31, 2014)
Tarbela	\$16.50	\$13.95	12/31/14*	128.0 MW	128.0 MW
Jamshoro	\$19.32	\$19.32	12/31/14**	150.0 MW	270.0 MW
Guddu	\$19.12	\$18.91	12/31/14**	75.0 MW	80.0 MW
Muzaffargarh	\$15.77	\$15.31	12/31/14**	475.0 MW	500.0 MW
Gomal Zam	\$45.00	\$45.00	Completed	17.4 MW	17.4 MW
Satpara	\$26.00	\$26.00	Completed	17.6 MW	17.6 MW
Mangla	\$150.00	\$13.00	12/31/2017	90 MW	In Progress
<b>Total</b>	<b>\$291.71</b>	<b>\$151.49<sup>7</sup></b>		<b>953 MW</b>	<b>1013 MW</b>

Through this reporting quarter, the cumulative number of people who have directly benefited from EPP’s efforts stands at 14.83 million people or 8.3% of the population. During the reporting period, EPP’s efforts have improved the financial performance of energy sector entities by \$626 million. This represents approximately 7.2% of the 2012 circular debt.

Eighty MW gains were achieved during this reporting period as a result of Component I activities. EPP’s efforts in support of U.S. Government’s energy infrastructure projects have resulted in 1013 MW restored or added to Pakistan’s grid.

## Rehabilitation of Tarbela Hydropower Plant

During the reporting quarter, the installation and commissioning of Digital Governors at all 10 Units are completed. EPP engineers visited the power plant on December 20, 2014 and inspected the commissioning of digital governors at Units 1 and 2. These digital governors will aid in the smooth operation of the power station. WAPDA will now submit a reimbursement request of \$300,000 on completion of the installation of digital governors as per Activity Agreement.

<sup>6</sup> EPP certified claims of \$151.49 Million; out of which \$3,719,580 is in process of reimbursement with USAID

<sup>7</sup> EPP certified claims of \$151.49 Million; out of which \$3,719,580 is in process of reimbursement with USAID

The rehabilitation work (Phase I) thus far, has resulted in the restoration of 128 MW at the Tarbela hydropower plant. Replacement of the generator windings at Units 1, 3, and 4, and the installation of digital governors, relief valve seals, and guides and pumps are now complete.

Up until now, WAPDA is unable to complete the remaining three activities: (1) upgrading of Supervisory Control and Data Acquisition (SCADA) system, (2) one dewatering pump, and (3) one-third spares winding due to settlement in the terms and conditions with the bidders, security concerns for the foreign experts, and availability of shutdowns in the summer season. Therefore, WAPDA requested USAID to extend the Activity Completion date for one year until December 31, 2015, and also to replace the one-third spare winding with more essential equipment and Rotor Poles because WAPDA already has one unutilized spare winding available in its inventory. These Rotor Poles are critical at this stage to sustain the already achieved 128 MW gains through the Tarbela rehabilitation and replacements of the aforementioned items are important for reliability and sustainability of the power station. The request is now pending with USAID. EPP provided USAID with its assessment on the estimated cost of the Rotor Poles to check that the cost quoted by Original Equipment Manufacturer (OEM) is reasonable.

USAID is also funding \$25 million for repair and maintenance of Tarbela Phase II project out of which \$10 million is sub-obligated under an Activity Agreement. This funding will aid the replacement of additional equipment that will add to the reliability and sustainability, and enhance the life of Tarbela hydro power plant by at least 15-20 years. An additional 20 megawatts about 60 Gwh of energy per annum and oil savings of \$12 million per annum is also expected with this replacement.

Regarding repair and maintenance of Tarbela Phase II project, EPP met with WAPDA to expedite the progress on the conditions set forth in the signed Activity Agreement, as these are mandatory for any disbursement. The phase II project will be implemented after the signing of a separate Project Implementation Letter (PIL). Of the \$16.5 million funding amount committed for Tarbela Phase I, the total disbursement as of this quarter has reached to \$13.95 million.

### Gomal Zam Multipurpose Dam Project (Project Completed)

With \$45 million in funding committed, USAID supported WAPDA in the completion of the main dam, powerhouse, switchyard, and transmission line at Gomal Zam.

The dam has the capacity to generate 17.4 MW of electricity and is capable of storing 1.14 million acre-feet of water that will control flooding and irrigate 191,000 acres of land. Power generated by the dam is enough to meet the electricity consumption needs of 161,158 individuals. The project is completed and was inaugurated by U.S. Ambassador Richard Olson in September 2013.



Figure 3: Gomal Zam Multipurpose Dam Project

### Satpara Multipurpose Dam Project (Project Completed)

EPP successfully achieved the Satpara Multipurpose Dam project objectives ahead of the anticipated completion date of December 31, 2013. The dam, four powerhouses, and irrigation canals are complete. The entire \$26 million in committed funding has been disbursed to the GOP.



Figure 4: Satpara Multipurpose Dam Project

The dam has added 17.6 MW to the Skardu grid and is capable of storing 0.09 million acre-feet of water that will control flooding and irrigate 15,500 acres of land. The power generated by the dam is enough to meet the electricity consumption needs of 163,011 individuals.

Severe weather conditions created challenges for work on this project but EPP completed the project ahead of the schedule time. The inauguration of the dam has been delayed due to poor weather.

### Muzaffargarh Thermal Power Station Rehabilitation Project

USAID-funded rehabilitation at Muzaffargarh Thermal Power Station (MTPS) has restored 500 MW to the national grid, which is sufficient to supply electricity to 4.63 million individuals. The restored 500 MW exceeds the project target of 475 MW given in the Agreement.

Thus far, about 95% of the equipment has been procured and installed, while procurement of the remaining items is underway. The management of Muzaffargarh Power Plant is committed to complete the outstanding work, therefore they requested USAID to extend the project completion date to June 30, 2015, as installation and testing of the remaining items will go beyond December 2014 and require another six months. In addition, Muzaffargarh Thermal Power Station has requested to allocate PIL amount for Item 5 – Modification of Excitation system to the much needed Item 33 – Distributed Control System (DCS) for Turbine Governing System and Boiler Turbine Auto Regulation System. The request is made since the bid price received by Muzaffargarh power plant for Item 33 is much higher than the allocated amount in the PIL due to price escalation in the market as rehabilitation started back in 2010. Item 33 is critical and is essentially required for the reliability and sustainability, however, due to financial constraints, the procurement of the item is delayed. Hence, the plant management has requested to adjust the amount of Item 5 in item 33 so that the procurement and installation of critical item 33 could be completed by June 30, 2015. The amendment request of Muzaffargarh is pending decision with USAID. EPP is providing support to USAID on the amendment request.

During the reporting quarter, EPP inspected the equipment under PIL item 25 – Repair of winding and stator of generators and testing of Units 5 and 6 to ensure its compliance with technical specifications mentioned in the PIL.

EPP certified claim of \$166,140 against PIL item 27 – Modification of Excitation System for Units 5 and 6, which is in the reimbursement process with USAID. As of December 2014, out of the obligated amount of \$15.77 million, the total amount disbursed to GOP stands at \$15.31<sup>8</sup> million for MTPS.



Figure 5: Muzaffargarh Thermal Power Station

### Jamshoro Thermal Power Station Rehabilitation Project

As of this quarter, about 96% of the equipment has been procured and installed, while procurement of the remaining two items (6 & 17) is underway. The management of Jamshoro power plant is committed to complete the outstanding work. Delays are generally the result of complex negotiations with the vendors. Therefore, Jamshoro requested USAID to extend the activity completion date to June 30, 2015 as installation and testing of these items will go beyond December 2014 and require another six months. Completion of the remaining two items is critical for reliability and sustainability of the power plant operations. The amendment request of Jamshoro is pending decision with USAID. EPP is providing support to USAID on the amendment request.

<sup>8</sup> EPP certified claims of \$15.31 Million; out of which \$166,140 is in the reimbursement process with USAID

EPP certified claims of \$1,981,500 against PIL Item 17 (a) Modification/Rehabilitation of Electro Hydraulic and Mechanical Hydraulic Governing system, (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), (c) Replacement of existing FSSS along with Furnace Flame Monitoring, (d) Replacement of Turbine Vibration system with Vibro-Control-4000 Schenk or equivalent for Unit 2 and PIL Item 6,— Hiring of services for Major Overhauling of Unit 1. These claims are in the reimbursement process with USAID. J

As of this quarter, out of the obligated amount of \$19.32 million, the total amount disbursed to the GOP stands at \$19.32<sup>9</sup> million for Jamshoro Thermal Power Station (JTPS).

## Rehabilitation of Guddu Thermal Power Station (GTPS)

USAID-funded rehabilitation at GTPS has resulted in the restoration of 80 MW of power generation capacity, which exceeds the project target of 75 MW given in the Agreement. These 80 MW are sufficient to supply electricity to 740,960 individuals.

In this quarter, about 94% of the equipment has been procured and installed, while procurement of remaining items is underway. The management of Guddu power plant is committed to complete the outstanding work.

Therefore, Guddu requested USAID to extend the activity completion date of the rehabilitation project to June 30, 2015 as installation and testing of one item (Item 4) will go beyond December 2014 and require another six months.

While disbursement of other item (Item 5) equivalent to \$0.213 million will not be completed by December 31, 2014 because the equipment is outdated and parts are not readily available with the vendors. Completion of the remaining item (Item 4) is critical for the power plant and is required to maintain reliability and sustainability of the generation gains that have been realized by this project. The amendment request of Guddu is pending decision with USAID. EPP is providing support to USAID on the amendment request.

EPP certified claims of \$1,571,940 against PIL Item 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 Gas Turbines (GTs) 7 & 8, which is now in the reimbursement process with USAID.

As of December 2014, out of the obligated amount of \$19.12 million, the total amount disbursed to the GOP stands at \$18.91<sup>10</sup> million for GTPS.



Figure 6: Guddu Thermal Power Station

<sup>9</sup> EPP certified claims of \$19.32 Million; out of which \$1,981,500 is in process of reimbursement with USAID

<sup>10</sup> EPP certified claims of \$18.91 Million; out of which \$1,571,940 is in process of reimbursement with USAID

## Mangla Dam Rehabilitation Project

USAID is providing \$150 million to GOP for the Mangla Dam Rehabilitation Project, out of which \$72 million was sub-obligated under an Activity Agreement signed on August 15, 2013. USAID will upgrade Units 5 and 6 as the two units are in the worst degraded condition; USAID will also fund the balance of plant that will improve efficiency and productive life of all 10 units of the Mangla Power Station. USAID is anticipating an addition of 90 MW of power generating capacity through rehabilitation work. Equipment under the sub-obligated \$72 million includes turbines and generators, power transformers, inlet valves and a crane. Procurement of all equipment has been initiated by WAPDA and is currently at different stages of bidding.



Figure 7: Generators of Mangla Power Station

The procurement of major equipment (turbines and generators for Unit 5 and 6), was initiated by WAPDA in February 2014 following invitation for bids to pre-qualified vendors (Andritz, Germany; Alstom, France; Dong Fang Electric Cooperation, China; and Voith Hydro, Germany). Bids received were opened on June 30, 2014 in the presence of bidders' representatives, while WAPDA and its international consultants later completed the evaluations in August 2014. One of the bidders, Alstom from France, was found noncompliant with the requirements stated in the WAPDA bid documents. Its validity of the bid security was not as per requirements specified in the bid documents. In October 2014, Alstom wrote to WAPDA and explained that the shortcoming in bid security was due to a mistake made by the bank, which was later fixed. Considering Alstom's request to reconsider its bid, WAPDA referred the matter to Pakistan Engineering Council for a decision. Now, WAPDA has decided to retender the procurement of turbines and generators for Unit 5 and 6. EPP is regularly in touch with WAPDA in order to expedite the procurements.

As per Activity Agreement, the project completion date is December 31, 2017 and the total amount disbursed to GOP as of December 2014 is \$13 million.

## GENCOs Performance Efficiency Improvement Program

Having achieved substantial and highly visible results through the replacement of equipment that resulted in power generation capacity and efficiency improvements, EPP is now focused on improving the commercial operations of the GENCOs. In this regard, EPP is providing support to the GENCOs to conduct NEPRA-compliant Heat Rate Tests in order to obtain a revised tariff from NEPRA, which will reflect the actual costs incurred by GENCOs in producing electricity and increase annual revenues through fuel saving of \$70 million per annum.

In the reporting quarter, EPP continued working level discussions with JPCL regarding USAID support for improving the commercial and technical performance of GENCOs. Performance Efficiency Improvement Plan is drafted in consultation with JPCL for the Jamshoro Thermal power station (JTPS) so that the gains achieved at JTPS be sustained as well as to improve the plant's operating life.

## Capacity-building at GENCOs and WAPDA

In the reporting period, EPP completed the final batch of the three programs focused on best practices in hydro Operations and Maintenance (O&M). Through training, the trainees will be able to identify deficiencies in their current maintenance practices and increase efficiency of the plants. In total, EPP trained the following:

Table 4: Hydel Staff and Students of Hydro O&amp;M Training

Hydel Power Stations	Batch I Participants (October 2014)		Batch II Participants (November 2014)		Batch III Participants (December 2014)		Total		
	Male	Female	Male	Female	Male	Female	Male	Female	Total
Tarbela	3		4		3		10		10
Ghazi Barotha	4	1	4		4		12	1	13
Mangla	3	1	4		3	1	10	2	12
Warsak	2		3		2		7		7
Chashma/Jinnah	2		2		2		6		6
Small Hydels	1		1		3		5		5
WAPDA	1	1	2		3		6	1	7
University Participants		5		3		3		11	11
<b>Total</b>	<b>16</b>	<b>8</b>	<b>20</b>	<b>3</b>	<b>20</b>	<b>4</b>	<b>56</b>	<b>15</b>	<b>71</b>

# COMPONENT 2: POLICY AND REFORM

During the reporting period, EPP continued to provide technical assistance to the GOP to support energy sector restructuring and reform, including more effective market policies, better targeting of subsidies, and capacity building of key institutions (policy makers, planners, regulators, facility managers, and project implementers). EPP's efforts are geared towards improved policy implementation that will help ensure greater efficiency and higher quality customer service, better sector and business management, increased political support for reforms, and eventually full cost recovery leading to sustainability. Proper implementation of these reforms will also provide a business environment that encourages public and private sector investment into the fuel and power supply networks, including cleaner energy technologies. Pricing reforms and the introduction of improved commercial practices in the power distribution sectors will support investment, increase self-financing for the sector to maintain and expand services, reduce over-dependence on the GOP budget, and mitigate future growth in demand for more energy services.

## SUPPORT TO MINISTRY OF WATER AND POWER

### Improved Policy Implementation

Pakistan is moving to allow private sector participation in transmission as part of the sector reform. EPP team will continue to provide support to this policy as the GOP Committee responsible for the policy moves forward toward its finalization.

#### **Draft Policy Report on Economic Impact of Shutting Down Jamshoro and Muzaffargarh**

EPP assisted MWP in estimating the economic impact of shutting down Jamshoro and Muzaffargarh Thermal Power Plants. A policy report was prepared that used output from PowerSIM and literature on load-shedding to estimate the benefits of continuing operation of Jamshoro and Muzaffargarh power plants. This was based on the proposal to supply LNG to five IPPs in Punjab (Halmore, KAPCO, Orient, Saif, and Sapphire) and offset this increase in generation by closing down the more expensive GENCO plants.

The report will help the government make a more informed decision by considering not only the benefits but also the cost of shutting down the two plants in economic terms.

#### **Policy Analysis on LNG and Gas Allocation**

EPP team worked directly with MWP and MOF to address the policy question of allocation of gas and LNG; what happens to prices, circular debt and subsidy. The results were discussed at the senior cabinet level as EPP used PowerSIM to develop these scenarios.

### More Autonomous Energy Sector Entities

**NTDC Performance Contract:** At the request of MWP, EPP had begun developing a Performance Contract to be signed between NTDC and MWP. The performance evaluation parameters/targets were to be developed on the basis of commercial, financial, human resource and corporate management categories.

EPP worked closely with MWP and NTDC on development of the contract. After initial meetings held last month, EPP met with senior management at NTDC to circulate the updated version of the contract and get feedback on key areas of the contract. A final version of the contract has been provided to Joint Secretary Policy (MWP) and final comments are being awaited from NTDC and MWP.

#### **NTDC Human Resource Management/Organizational Development Consultant:**

EPP is helping the Board and management of NTDC develop a Request for Procurement (RFP) for consulting services to bring NTDC human capital management in line with best practices in transmission and to move towards being a commercial entity. As agreed and discussed during the

meeting in October, EPP continued meeting with the employees in the head office and field offices for development of mission/vision statements.

Meetings were held during the month at NTDC Lahore for onboarding of the consultants for organizational restructuring. An important step for the NTDC team is to be proactive regarding the processes, which include planning the meetings, and collecting and consolidating the required data.

The RFP for hiring of consulting firm was issued to the shortlisted bidders. The last date for submission of proposals is Jan 13, 2015. EPP will work with NTDC in preparing the information package that will be needed by the selected consulting firm.

#### **Business Transfer Agreement:**

Meetings were held with the General Manager, WPPO and General Manager CPPA on the formation of CPPA (G). EPP received feedback on key concerns of both departments particularly relating to Human resources and the role of PEPCO. The General Manager (CPPA) requested a follow-up meeting with all senior management from CPPA to get their feedback/comments. EPP has forwarded the meeting request and concerns to PDP, which is dealing with this task.

#### **Power Purchase Agreement (PPA) between WAPDA and NTDC:**

EPP met with general managers of WPPO and CPPA on the proposed draft amendment in the PPA between NTDC and WAPDA. The rationale behind the amendment was presented to both officials. As a matter of concept, there are no major concerns. EPP has requested MWP to prepare a draft amendment that can be signed by the relevant parties.

### **Improved Capacity of USAID-Supported Energy Public-Sector Entities**

EPP held an introductory meeting with the Chairman, Board of Directors of NTDC to discuss development of the Strategic Plan for the Board of Directors of NTDC. The key items in the Business Plan will include development of a vision, preparation of a mission statement, long-term human resource development goals and strategic objectives moving forward.

**GENCO Performance Contract:** EPP team assisted the MWP to review and finalize the Performance Contract between individual GENCOs and the MWP. Based on available baseline data and industry standards, targets were established for Key Performance Indicators (KPIs) against which the performance of GENCOs will be monitored by MWP.

Meetings were held with the senior management of GENCO Holding Company and the GENCOs to discuss the performance contract. Their feedback included suggestions on alternate language and timelines for submission of reports to BOD and MWP. The contract was thus modified to incorporate their suggestions. EPP team has delivered the final copy of the contract to the MWP to follow-up with GENCOs.

### **Issues and Constraints, and Measures Taken to Resolve Them**

EPP has been given the task to interact with NTDC on behalf of MWP on Performance Contract and in Strategic Business Plan. This requires a strong working relation with NTDC senior management. EPP has held a string of meetings with NTDC to ensure that they are on board and their comments/feedback is conveyed to MWP.

EPP has been working closely with senior management at MWP on a variety of tasks. The nature of the tasks requires constant interaction and feedback with key officials at MWP. During the quarter, EPP team spent considerable amount of time at MWP to ensure that all queries/requests are dealt with urgently and efficiently.

## SUPPORT TO MINISTRY OF FINANCE

EPP's ongoing support to the MOF provided impartial and transparent advice and support that promotes the GOP's and USG's shared vision for sector reform. During this period, EPP's embedded advisor provided the following assistance:

- Assisted the Corporate Finance Wing (CFW) of MOF in the preparation of views/comments on the summary for Economic Coordination Committee (ECC), submitted by the MWP regarding grant of exemption from tax and duties on import of solar panels for use in power generation.
- Continued work on the final draft of the report regarding Diagnostic Analysis / Review of Regulatory Framework of NEPRA, which is being prepared by the Economic Reforms Unit (ERU) of the MOF, in pursuance of the instructions of Council of Common Interest (CCI).
- Assisted the CFW of MOF in preparation of views/comments on the summary for ECC submitted by the MWP regarding utilization of the existing available generation capacity of short-term IPPs.
- Assisted the CFW of MOF in the preparation of the views/comments on the summary for ECC submitted by the MWP regarding proposed agreement between Guddu Thermal Power Station (GENCO-II) and M/s Engro for use of 60 MMCFD gas from Mari gas field in lieu of gas booster compressor to be installed by Engro for GENCO-II.
- Assisted the CFW of MOF in the preparation of a brief on the summary for ECC submitted by the MWP regarding Modified Policy Framework for on-site power projects based on interim gas supply.
- Assisted the CFW of MOF in preparation of the views and comments on the proposal submitted by the Secretary Water and Power regarding issuing of GOP guarantee for the opening of Standby Letter of Credit (SBLC) by the distribution companies for purchase of power from onsite IPPs, based on interim gas supply.
- Provided briefing to Secretary Finance along with Senior Joint Secretary, CFW via proposed amendment in the policy framework proposed by the MWP regarding establishment of onsite IPPs based on interim gas supply.

### Issues and Constraints, and Resolving Measures

- No constraints were faced during the reporting period.

## SUPPORT TO MINISTRY OF PETROLEUM AND NATURAL RESOURCES

EPP continued to provide technical assistance in support of the Ministry of Petroleum & Natural Resources (MPNR) and the GOP for USAID pre-approved activities, including but not limited to, LNG, oil and gas (including shale gas), and advisory services to increase natural gas supplies for power generation. These efforts continue to contribute to the successful formulation and implementation of the GOP's LNG import program and institutional capacity building. They also promote sustainable improvements in Pakistan's upstream policy, rules, the regulatory framework, and exploration and production (E&P) programs to expedite increased domestic production to mitigate fuel supply issues in the power sector. Specific activities during this reporting period include:

### Shale Gas

- EPP prepared a Request for Consent of USAID for inclusion of 14 additional confidential well data in the final Milestone-4 report, which would entail additional cost and time. Following USAID approval, Delivery Order-2 has been executed with LMKR to cover the enhanced scope of work.
- DGPC has issued a reminder to OGDCL to expedite the matter regarding waiver of the amount invoiced for the previous confidential well data made available by OGDCL. Response from OGDCL is still awaited.

- Amendment to the sub-contract to increase the performance period enabling LMKR/NuTech to undertake additional work on the 14 confidential well data has been executed.
- DGPC has requested OGDCL and HDIP to release the confidential well core samples to LMKR, which are to be analyzed by NuTech as part of the final Milestone-4 report (resource assessment).
- LMKR, in consultation with DGPC, has sent well logs to NuTech for determination of depths for the well core data required to be included in the final Milestone-4 report.
- EPP has reviewed the revised Executive Summary for Milestone-4 (incorporating a table of resource numbers for all the geological formations) and provided its comments to LMKR. LMKR, in coordination with NuTech, is in the process of revising the Executive Summary in line with EPP comments.
- USAID conveyed its approval for inclusion of additional 14 confidential wells in the ongoing Shale Gas resource assessment study upon MPNR request.
- Additional Secretary MPNR was requested to resolve the matter with OGDCL regarding excessive amount invoiced for the confidential well core data sent to Houston for analysis. Subsequently, with the approval of the competent authority, DGPC issued a letter to OGDCL to waive the amount invoiced for the previous confidential well data made available.

## Upstream Oil and Gas Support

- Advisory work on day-to-day issues of DGPC continued. Specific cases included extension of Sui mining lease, gas price incentive as per 2012 Policy for incremental production increase, data repository contract, extension of license and leases, notice on nonpayment of royalty by a specific company, reference of a case to Law Division on indexation of license/lease rentals, and unauthorized flaring of gas.
- Proposed RQ-3, Director General Petroleum Concessions (DGPC) data management contract, and termination of an exploration license was discussed in a meeting with PTS long-term consultants on December 1-2. In addition, the deliverables regarding improvement of policies were discussed. Necessary input was given by EPP to enable PTS to finalize the deliverables. Subsequently, RQ-3 for future work to be carried out under the program by PTS has been executed and sent to USAID for information.
- LMKR made a presentation on DGPC data repository on December 2, 2014.
- Subsequent to a meeting held with EPP regarding indexation of surface rent of licenses and leases, PPEPCA prepared a draft reference to be sent to the Law Division for advice by DGPC after necessary changes, if required. Draft reference was reviewed by EPP and PPEPCA was asked to modify the draft in light of EPP review. PPEPCA's revised draft has now been received and is under EPP review.
- A series of meetings was held with DGPC, DG Oil, DG Gas and their concerned officials on December 1 and 4, 2014 to review the Model Onshore Supplemental Agreement. It was agreed to hold another meeting to obtain input from DG Gas on the relevant provisions apart from other sections of DGPC. Another meeting was held on December 24, 2014 to discuss the Model Onshore Supplemental Agreement reviewed by DGPC office. Agreed changes were made by EPP and sent to DGPC for finalization and initiating the approval of the Competent Authority.
- Comments of DGPC on the Offshore Model Supplemental Agreement submitted on November 6 are still awaited.
- Following MPNR response to a USAID letter regarding Implementation Unit to be set up in the DGPC office, EPP prepared an RFP for hiring of professionals in the proposed DGPC Implementation Unit. Advertisement for hiring of professionals in the proposed Implementation Unit has also been published with a deadline of December 30, 2014 for proposal submission.
- PTS long-term consultant attended a meeting convened by the Minister MPNR to discuss the extension of Sui mining lease. Another meeting would be convened by the Secretary MPNR to finalize the matter in the presence of all concerned.
- EPP Oil and Gas Advisor attended meetings of the Gas Committee to carry out audit of the gas fields during the month. All operating E&P companies also participated. Draft report prepared on

the basis of discussions held between E&P companies and the Gas Committee has been submitted to Additional Secretary MPNR for necessary action.

- Meetings were held with PTS consultants and legal counsel to review the deliverable on improvement/modification of E&P Rules. PTS has been advised to modify the deliverable in light of this discussion.
- DGPC's minimum organizational report has been finalized by EPP.
- Deliverable on Advisory Support to DGPC for the month of November was reviewed by EPP and comments sent to PTS for finalizing the deliverable.
- PTS revised report on regulatory framework for tight gas, low Btu gas and marginal gas fields, was reviewed by EPP. Necessary comments have been sent to PTS for incorporation in the report.

## LNG Imports

- Work on finalizing the draft Master Sales Purchase Agreement (MSPA) continued during the month. A multi-stakeholder conference call was held on December 1 to discuss the draft MSPA submitted by Watson Farley & Williams/ Facts Global Energy (WFW/FGE). Further discussions were held between WFW, Sui Southern Gas Company (SSGC), PSO and their respective legal advisors on the MSPA in Karachi from December 15-17. Following these discussions, fourth version of the draft MSPA was submitted by WFW/FGE for stakeholders' comments before issuing the final version.
- WFW prepared guidance notes for SSGC and PQA on Direct and Option Agreements.
- A revised/updated version of LNG procurement strategy was submitted by FGE for GOP consideration.
- As a follow-up to meeting in Doha on November 16, PSO sent its high-level comments to Qatargas on the LNG SPA being negotiated. These comments were prepared with the assistance of FGE and WFW.
- FGE provided input on the issue of technical viability of navigation of Q-Flex vessels for delivering LNG cargoes under the existing port parameters at PQA.
- FGE participated in the meeting of GOP's LNG Price Negotiation Committee via Skype on December 29, 2014. The Committee was apprised of the current status of Government-to-Government negotiations with Qatar and Malaysia, and MSPA for procuring spot cargoes. The way forward for the procurement process was also discussed.

## LNG PQA Support

- Meeting of EPP LNG Advisor and Engineering Consultants International (Pvt.) Limited (ECIL) was held with Chairman and relevant officials of PQA on December 3 to discuss the need for improved coordination among stakeholders and the way forward.
- Regular project monitoring by pipeline, civil marine, and environmental, and navigational experts continued during the month.
- Enegro Elengy Terminal Pakistan Limited (EETPL) submitted soft copies of various documents that had not hitherto been provided despite various reminders. Hard copies of the required documents (soft copies of which had been provided earlier) were also made available by EETPL. These documents are now being reviewed by ECIL-Granada. EETPL also agreed to provide hard copies of various project reports by December 31.
- A review meeting on bidders' queries on tender for purchase of LNG Compatible Tugs was held on December 8. EPP LNG Advisor, ECIL, and Granada (via Skype) also participated. Chairman PQA attended the meeting and discussed the queries with ECIL-Granada.
- ECIL provided its comments to PQA on EETPL's quarterly environmental monitoring report, as well as monthly environmental monitoring reports for September and October.
- Granada submitted a detailed report on project development studies (including gap analysis of hazard studies) sponsored by EETPL.

- Granada submitted its review/analysis of Full Mission Bridge Simulation Study to PQA. The report raises concerns on the technical viability of navigation of Q-Flex vessels for delivering LNG cargoes under the existing port parameters at PQA.
- The matter of issuance of NOCs for Granada consultants to be stationed at PQA was rigorously followed up with ISGS during the month.
- Mooring layout verification and mathematical modeling study sponsored by EETPL is under review by Granada.
- A meeting between ECIL and PQA was held on December 30 to formulate port tariff for LNG carriers.

## Issues and Constraints, and Resolving Measures

**LNG:** Full mission bridge simulation study for PQA had to be put on hold upon finding that EETPL had sponsored a similar study. A decision on whether to undertake the study was to be made following review of the report of simulation study sponsored by EETPL, once available. The report has now been received from EETPL and reviewed by Granada. PQA is currently evaluating the report in order to decide the extent of EPP support (if still required) in this regard.

Following technical concerns flagged by Granada on the viability of navigation of Q-Flex vessels for delivering LNG cargoes under the existing port parameters at PQA, EPP LNG Advisor discussed the issue with Director General (Operations) and PQA pilots for a timely resolution. PQA brought this matter to the attention of the Ministry of Ports & Shipping and Ministry of Petroleum and Natural Resources.

The ministries were informed that under the Implementation Agreement between PQA and EETPL, PQA is committed to safely handle only those LNG carriers that are compatible with its existing port navigational channel parameters. To handle larger Q-Flex vessels, a significant amount of dredging of navigational channel and anchorage area is required (as identified by the Full Mission Bridge Simulation Study sponsored by EETPL), for which responsible agencies (either SSGC/PSO/EETPL) may be instructed accordingly.

Technical drawings and documents related to LNG Terminal construction were not made available by EETPL to ECIL-Granada to enable them to provide monitoring support to PQA. Upon highlighting of the issue by EPP, PQA wrote to EETPL to provide the necessary documents and drawings to ECIL-Granada. As a result of aggressive follow-up, the issue has been largely resolved and EETPL has now provided most of the documents and technical drawings for ECIL-Granada review, with the remainder being still under process.

Granada consultants require a No Objection Certificate (NOC) to commence work at PQA on account of being U.S. nationals. A request was sent to the Ministry of Interior in coordination with ISGS for issuance of NOCs for Granada consultants in early November. However, the NOCs have not yet been issued which has prevented Granada team to arrive in Pakistan and commence work at PQA. EPP is aggressively pursuing this matter with ISGS to ensure presence of Granada team at PQA as soon as possible.

**Shale Gas:** DGPC has recommended inclusion of additional confidential well data (cores/cuttings) in the ongoing resource assessment study. Inclusion of this data will lead to additional cost and a delay of 3 to 4 months in the final resource assessment report. A meeting was held with USAID on November 21, 2014 wherein MPNR representative gave the rationale that the said inclusion will increase the confidence level of the findings in the ongoing study. USAID in principle approval was granted and Additional Secretary (MPNR) sent a formal request letter to this effect to USAID. Request for consent for additional budget along with new Delivery Order to cover the enhanced scope of work was sent to USAID for approval. Following USAID approval, Delivery Order was executed with LMKR.

**Upstream Oil and Gas Support:** There is a serious constraint of manpower in DGPC. A proposal for DGPC manpower support including Implementation Unit was submitted to USAID for

consideration. A meeting was held with USAID on December 4, 2014 to discuss this proposal in detail. After receiving USAID approval, RFP was prepared and invitation to bid was floated with a deadline of December 30, 2014 for the bidders.

ARI, the prime sub-contractor under contract with PTS, has refused undertaking the Shale Gas Policy formulation work due to travel constraints to Pakistan (security advisory). Keeping in view the current situation, a proposal for re-appropriation of funds under PTS contract to issue a fresh RFP for formulation of Shale Gas Policy framework was submitted to USAID for approval. This proposal was discussed in detail with USAID in a meeting held on December 4, 2014 wherein USAID allowed initiating the request for consent for re-appropriation of funds under PTS contract.

Model Supplemental Agreement for conversion from older regime to 2012 Policy terms was finalized and submitted to DGPC in July 2014 after consultation with the Industry for GOP approvals. A meeting was held with DGPC on December 24, 2014 to discuss and agree to the changes in the subject Agreement. Revised Agreement as per the discussion was sent to DGPC for finalization and to initiate the approval process. EPP provided rationale on the points that raised reservations for consideration of DGPC.

## SUPPORT TO MINISTRY OF PLANNING AND DEVELOPMENT

EPP continued to provide assistance to the Member Energy and his team on the following tasks:

**PowerSIM:** The Planning Commission (PC) has adopted PowerSIM and it is now becoming an accepted GOP tool. PC will be using it for forecasting and analyzing the impact of policy decisions and for the five-year plans. EPP team has incorporated Pakistan's Generation Plan into the model and is helping PC to run different scenarios on PowerSIM for the 11<sup>th</sup> five-year plan.

**Policy Analysis and Planning:** EPP team worked closely with Member Energy and updated PowerSIM according to the new generation plan provided by the Ministry of Planning Development and Reform. The plan included reducing country coal power generation and replacing it with LNG based power plants. EPP team prepared a presentation for Member Energy based on PowerSIM data on modified generation plan and reduced crude oil prices, which were shared with the Minister.

**Technical Assistance:** EPP assigned staff to the Planning Commission provided assistance on the following items:

- Visited various sites in Sindh, with Member Energy and officials of Planning Commission to analyze feasibility for establishment of power generation plants from the energy reserves discovered in the area. Prepared visit report and circulated to Member Energy for further submission and discussion with the Secretary and the Minister.
- Provided general technical assistance, and system and network administration to the office of Member Energy to carry out routine tasks smoothly. Monthly backup was taken from systems in the office of Member Energy.

## Issues and Constraints, and Resolving Measures

- EPP has been working closely with Member Energy on developing various scenarios and preparing presentations on possible policy decisions. PowerSIM has been used as a major tool in conducting this analysis. EPP has worked closely with staff at PC to ensure that they receive adequate training to process data and conduct analysis in a timely manner.

# COMPONENT 3: NEW PROJECTS, PLANNING AND DEVELOPMENT

EPP team assisted USAID in meetings with WAPDA to discuss progress and advised on next steps necessary to further the Kaitu Weir Project (part of the Kurram Tangi Dam Project). EPP team also responded to queries from USAID on the cost estimation process for G2G funding of hydropower projects. On directions from USAID, EPP also conducted Rapid Environmental Analysis (REA) for both projects; however, the project seems to be no longer active with USAID. The team also assisted in monitoring ongoing training on hydropower plant operations.

## **Kurram Tangi – Kaitu Weir**

Regularly scheduled meetings of USAID-WAPDA on the Kaitu Weir project were postponed during the quarter due to various reasons given by WAPDA, as well as because of the nationwide security situation from time to time. WAPDA had issued an advertisement in November 2014 asking for construction bids by January 15, 2015. A pre-bid conference was held on December 30, 2014 in Lahore. Six firms attended and requested a site visit. WAPDA plans to arrange a site visit around January 13, 2015 and plans to extend the bid opening date to mid-February 2015.

## **Run-of-River Alai Khwar and Duber Khwar Projects**

These projects are no longer being considered for funding by USAID.

## **Golan Gol Project**

EPP responded to USAID directions to quickly review the 106 MW Golan Gol Hydropower Project in Chitral Valley and immediately arranged and met with Mr. Saleem Mirza, Director for the project at WAPDA. Based on the meeting and copies of PC I and project consultant's progress report, EPP submitted a Preliminary Review and Assessment Report to USAID.

EPP maintained daily contact with WAPDA's Mr. Aziz Khan, General Manager (North) and Mr. Amir Jang Khan, Chief Engineer/Project Director, Golan Gol to arrange meetings and a site visit. Schedules were set but later postponed due to security uncertainty triggered by the tragic events in Peshawar on December 16, 2014 and also due to cancellation of flights to Chitral.

A multi-disciplinary team from EPP eventually visited the site during the December and a meeting was also held in Peshawar with WAPDA officials directly responsible for the project. Information is being compiled and gaps have been identified. EPP will be holding further meetings to clarify issues before drafting a Due Diligence Report for USAID review.

## **Issues and Constraints, and Resolving Measures**

The Kaitu Weir project (KWP) is a part of the Kurram Tangi multipurpose Dam Project (KTDP). The main project has been divided on advice of EPP in parts by WAPDA to accommodate and facilitate funding indicated to be available from USAID. The estimated cost of KTDP is around \$700 million whereas KWP is expected to complete in about \$120 million per latest estimates by WAPDA.

Costs and plans are being finalized between USAID and WAPDA with the active advice, assistance and participation of the donor funded project development experience, hydropower expertise and knowledge of WAPDA process and procedures available with EPP.

USAID has been advised that establishing and operating a Project Office at Spin Wam in North Waziristan will demonstrate access to site and signal possibility to start project activities.

Currently, the essential next step is successful receipt of bids at WAPDA from contractors willing to build the Kaitu Weir and Affiliated Structures.

# COMPONENT 4: NEW ACTIVITIES

## TRANSMISSION

EPP continued to focus on strengthening the power transmission network, and on capacity building for power sector entities involved in transmission, with a particular emphasis on the Peshawar Electricity Supply Corporation (PESCO) and the National Transmission and Despatch Company. To date, 426 MW of transmission throughput capacity have been added to PESCO's and NTDC's network as a result of EPP's assistance.

## PESCO

EPP's support to PESCO will improve and upgrade their transmission system by reducing transmission losses, improving reliability, and adding more MW to the Pakistan's grid.

EPP's Transmission Team compiled 82 out of 82 audit reports to-date. All substations have been audited. The reports highlight shortcomings/bottlenecks found and recommend preventive and corrective measures. The team also included a detailed prioritized action plan, Bill of Material (BOM), and cost estimates to bring faulty/out of service equipment back into commission, and have identified areas for system expansion. So far, 426 MW (416 MW throughput capacity, 10 MW added/saved) have improved PESCO's network as a result of EPP's assistance.

- **Power Transformer Program**

During this period all (211) samples have been tested. The results determine potential transformer damage and the consequence of an outage, which can cause unscheduled load shedding. Results show that many of PESCO's transformers require oil purification. EPP is in the process of procuring two oil filtration plants for PESCO's operations and maintenance staff. EPP will request PESCO to implement policy changes that will allow PESCO's Grid Systems Operation (GSO) staff to use the oil filtration plant of Grid Systems Construction (GSC) when it is not in use.

- **Capacitor Bank Rehabilitation**

- A 36 MVAr capacitor bank was rehabilitated at Jahangira 132kV GS by the replacement of Circuit Breaker (CB). The capacitor bank will result in adding 12 MW of throughput capacity and reduce losses by 2 MW.
- A 48 MVAr capacitor bank was rehabilitated at Bannu 132kV GS by the replacement of damaged cells and installation of a Current Transformer (CT) and Circuit Breaker (CB). The capacitor bank will result in adding 18 MW of throughput capacity and reduce losses by 2.1 MW.
- Installation and primary (initial) testing of the second Capacitor Bank along with 145kV CB at Tall 132 kV GS has completed. The final testing and commissioning remains.

- **Tower Repair**

Repair work at 5 of 15 (33%) tower locations has been completed. The work is in progress on the remaining locations.

- **Protection and Instrumentation Equipment and Vans**

Fully equipped testing vans for PESCO's P&I department were handed over to PESCO in a ceremony held on November 13, 2015. The provision of these vehicles will allow PESCO to conduct testing of the installed protection systems to improve reliability and perform timely maintenance where necessary.

- **Transmission and Grids (T&G) Equipment**  
During the reporting period purchase order has been awarded to M/s. Ikram Corporation for supply of T&G equipment. The contractor is to deliver equipment by February 2015.
- **Cooling Fans**  
Purchase order was awarded to M/s. Shine on November 20 for the supply and installation of fans. On 10 power transformers, 49 cooling fans have been installed so far, adding a total 23.3MW of transformation capacity to PESCO's network. EPP anticipates closing this project by end of February 2015.

## NTDC

- **Technical Audits**
  - Thirty-four reports have been written. The reports summarize the audit findings and propose steps necessary for carrying out both preventive and corrective maintenances and recommended infrastructure upgrades/augmentations.
  - Forty-one (41) of forty-six (46) grid station field audits have been completed (89%). This includes all 39 grid stations in the original scope of work and two of the seven grid stations added later.
  - Grid Stations audited during this quarter: NKI 500 kV GS, Dadu 500 kV GS, Bannu 220 kV GS, Shikarpur 220 kV GS, Rohri 220 kV GS, Daherki 220 kV GS, TM Khan Road 220 kV GS, Hala Road 220 kV GS, Guddu 500 kV GS, Shalimar 220kV GS, and Ghazi Road 220 kV GS.
- **IT Support for Secured Metering System (SMS)**  
The display installations at DISCOs have been completed. The assembly, installation, and commissioning of Storage Area Network (SAN), Servers, UPSs, and other associated equipment were completed in September 14. The system will help NTDC on commercial and operational fronts.
- **NTDC System Studies**
  - Integration of intermittent renewable resources with national grid: the purchase order has been executed and work is in progress.
  - Load flow study: procurement action is underway.
- **Real Time Digital Simulator**  
Purchase order was awarded during this period to M/s. OPAL-RT.
- **Hardware and Software for NTDC Design**
  - Hardware for NTDC's Design Department: Purchase Order (PO) awarded to M/s. EGS (Pvt.) Ltd. Vendor is to deliver all the items by January 2015.
  - Software and Training for NTDC's Design Department: procurement process is underway.

## Live Line

- The live-line team refurbished hot-sticks for three live line crews; one at NTDC Islamabad University 220kV GS, the second at Tarbela Training Center and the third for Lahore Electric Supply Company (LESCO). A demo session was held in this quarter. NTDC's and LESCO's live-line staff were taught how to perform this task. At the end of the session a hot-stick refurbishment and cleaning kit was handed over to NTDC and LESCO along with instructional videos.
- Technical evaluation for additional live-line tools was completed and handed over to procurement department.

## Issues/Constraints and Resolving Steps

- In this reporting quarter, the commissioning of 132/66 kV power transformer at Chakdara GS could not be completed due to shortage of power transformer oil. EPP is procuring oil for the transformer. Commissioning of the transformer will take place at the end of February 2015.
- On Real Time Digital Simulators, the vendor, M/s. OPAL-RT, requires opening of Letter of Credit (LC) before starting production. The Home Office is working to resolve this issue.

# CROSS-CUTTING ACTIVITIES

EPP completed the final batch of the three programs focused on best practices in hydro O&M. With the training, the hydro plants will be able to identify deficiencies in their current maintenance practices and increase efficiency of the plants. Additionally, EPP recruited three females, two from Center for Advanced Studies in Engineering (CASE) and one from National University of Computer & Emerging Sciences (NUCES), for the third batch to increase their practical knowledge and skills regarding hydroelectricity. In total, EPP trained the following:



A certificate ceremony was held in October, November and December for all three training batches at the Serena Hotel Islamabad.

## NTDC and CPPA Support

EPP completed the first of the three exchange visits to the U.S. focused on improving grid operations on October 29, 2014. Through these exchanges, EPP aims to improve transmission capacities in Pakistan's power sector while establishing professional relationships to draw upon after the conclusion of the program. EPP prepared a post training evaluation report based on the feedback obtained from NTDC's participants; report is currently under review.

EPP also submitted all J-1 visa paper work for the NTDC Market Operations training to be held on January 11, 2015. EPP obtained R3 approval and received the DS-2019 forms from USAID. EPP has sent all the required documents to the Office of Energy for scheduling visa interviews for the 9 participants and 1 alternate.

EPP conducted interviews with participants nominated by NTDC's Managing Director for the third exchange visit to the United States, focused on commercial operations on November 24-25, 2014. Following shortlisting, EPP will seek USAID approval of nine participants and two alternates before commencing the J-1 Visa process. EPP anticipates the final exchange will take place in February 2015.

## Live Line Training

EPP successfully delivered Live-Line Maintenance (LLM) tools and vehicles to Peshawar Electric Supply Company (PESCO) and Islamabad Electric Supply Company (IESCO) on November 13, 2014 in Islamabad. EPP is currently planning to kick off Live-Line Maintenance refresher training for the five previously trained DISCOs in February 2015.

## LNG Industry

For the LNG Business Management Intensive program, vendor negotiations are in process and nominations were received from Port Qasim Authority (PQA); EPP anticipates MPNR's nominations

in early January 2015. The program will host 15 participants in Kuala Lumpur in January and February 2015. The program will focus on improving MPNR, ISGS, PQA, and PSO port and commercial capacity related to LNG import.

## Gender Assessment and Strategy

EPP delivered a gender assessment to USAID in the reporting quarter, which will be followed by a gender strategic plan and a public forum for enhanced gender integration in the energy sector in Pakistan. EPP's short-term gender specialist drafted the energy sector gender strategy and is currently under review by EPP. The assessment determined a baseline of current gender equality practices. The associated gender strategic plan will provide realistic and effective recommendations and activities for promoting gender equality initiatives.

## Female Participation in Training Activities

As a result of student recruitment and emphasis on female participation, EPP trained 15 females and 56 males throughout the Best Practices in Hydro O&M program; more than 20% female participation in one activity. EPP continues to improve female participation figures in training activities as a standard practice.

EPP will continue to promote female participation in all future capacity building activities.



Figure 9: Female participants from Islamabad

## Monitoring and Evaluation

### Annual Report

EPP revised the FY 2014 Annual Report with suggestions from the USAID Energy Office and submitted for approval. EPP still requires final approval of the Annual Report.

### Work Plan

EPP submitted the FY2015 Work Plan to USAID on October 22, 2014. EPP still requires final approval.

### PakInfo

EPP continues to collect data for FY 2015 Quarter I entry to be completed in January 2015

## Site Visits

EPP conducted post-training evaluations and interviews at Islamabad's Serena hotel with the O&M hydro batch-III participants on December 19. EPP is developing a comprehensive evaluation report outlining the responses gathered from the O&M hydro training participants' batches 1-3. EPP conducted post-training evaluations at Muzaffargarh and Guddu Thermal Power Station (GENCOs II & III). The purpose of the site visit was to review O&M training outcomes. EPP is developing a comprehensive evaluation report outlining the responses gathered through focus group discussions with the thermal O&M training participants.

EPP conducted post-training evaluations at EPP's Lahore office with the Executive Exchange on Best Practices in Grid Operations for NTDC participants. Also, a presentation was delivered to NTDC Grid Operations with the 7 out of 9 participants present on November 25 in the presence of NTDC officials and EPP Transmission experts.

# COMMUNICATIONS

EPP's communications activities promote and develop outreach strategies that highlight the program's ongoing efforts and achievements.

The Communications team organized and hosted a certificate distribution ceremony to mark the completion of the Best Practices in Hydro Operation and Maintenance training.

The Certificate distribution ceremonies were held at the Serena Hotel in Islamabad; and a total of 71 engineers and students were awarded certificates.

To strengthen communications and outreach efforts, the Communications Team began collecting data that will help develop success stories and one-pagers. The team also initiated working on modification of the program website and populating its pages with appropriate updated information. Moreover, content is being gathered to put together a quarterly newsletter for EPP for dissemination to key stakeholders, program partners, and the media, among others.

Communications Team provided appropriate USAID Branding & Marking for the following EPP-generated reports:

- Prepared certificates for 71 trainees of “Best Practices in Hydro Operations and Maintenance” training
- Prepared presentations for the training on Best Practices in Hydro O&M
- Prepared the Final Test for the training on Best Practices in Hydro O&M
- Prepared Environmental Monitoring and Audit Report GTPS – Visit 9
- Prepared Environmental Monitoring and Audit Report MTPS – Visit 7
- Ensured compliance of appropriate USAID Branding and Marking Protocols for ongoing programmatic activities, program reports, and other dissemination material.

**Confidential information redacted**

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# LIST OF KEY MEETINGS

Meeting with	Date	Location	Purpose	Outcome/Result
<b>Component I</b>				
Carlos Guerra	October 16, 2014	EPP Islamabad Office	Discuss the progress of GENCOs and plan of USAID visit to Guddu Power Plant	Briefed about the GENCOs progress and plan for the Guddu visit finalized and shared
Iftikhar Aziz (CEO Jamshoro)	October 21, 2014	Jamshoro Thermal Power Station	Discuss the Performance efficiency improvement (PEI) program and schedule of remaining items	Briefed CEO about the PEI program Schedule for the remaining items was prepared and shared with USAID
Rukhsar Qureshi (CEO Guddu)	October 25, 2014	Guddu Thermal Power Station	Briefing on the USAID visit plan.	USAID visit to power plant was briefed
Member Power, GM hydel	October 28-29, 2014	WAPDA house Lahore	Discuss the progress of Mangla procurement, status of procurement under Tarbela Phase II, payment plan for Tarbela phase II, WAPDA request of replacing 1/3 <sup>rd</sup> spare winding with Rotor Poles	Status of Mangla Procurement updated and documents taken from WAPDA Status of Tarbela Phase II Procurement updated Revised Payment plan for Tarbela Phase II taken from WAPDA. EPP expert will visit Tarbela power station and check the spare winding in the inventory of Tarbela
MSI	October 28, 2014	EPP Islamabad Office	Discuss the Generation MW data calculation for data verification at Jamshoro & Tarbela	MSI will visit Jamshoro on Nov. 14, 2014 & Tarbela on Nov. 17, 2014
Mangla Project Staff Mr. Abdul Wahab, Senior Engineer (Mechanical) Mr. Hasan Khalid, Sub-engineer, Project Staff Mr. Gul Rehman, Store Keeper	November 07, 2014	Mangla Power Station	Briefing on EMMP of Mangla project.	EMMP briefed to project staff, emphasizing at different aspects of the EMMP's implementation requirements,

Meeting with	Date	Location	Purpose	Outcome/Result
CEO Tarbela 'Mr. Sher Afzal'	November 10, 2014	Tarbela Power Station	To discuss the status of procurement of equipment's and progress on meeting the conditions precedents set forth in Activity Agreement for Tarbela Phase II.	1. Procurement of remaining equipment's was discussed and advised to expedite the procurement. 2. WAPDA to expedite the progress on meeting the conditions precedents.
CEO Jamshoro 'Mr. Iftikhar'	November 13, 2014	Jamshoro Thermal Power Station	To discuss the status of Jamshoro	Procurement of remaining equipment was discussed and advised to expedite the procurement.
Member Power 'Mr. Badar'	November 18, 2014	WAPDA house	To discuss the status Mangla & Tarbela phase I & II	Progress of Tarbela & Mangla was discussed and WAPDA was advised to expedite the progress on conditions precedents.
CEO Tarbela 'Mr. Sher Afzal'	December 20, 2014	Tarbela Power Station	To discuss the status of procurement of equipment under Tarbela Phase I	Procurement of remaining equipment's was discussed and advised to expedite the procurement and send the invoice of \$300,000 million against the installation of digital governors at all ten units as per FARA.
Member Power 'Mr. Badar'	December 26, 2014	WAPDA house	To discuss the progress on meeting the Conditions precedents set forth in Activity Agreement for Tarbela Phase II.	WAPDA met the two conditions set forth in the Activity Agreement. Now only one condition remaining, which is the opening of Assignment Account. WAPDA was advised to meet the remaining condition at earliest.
CE Technical Director 'Mr. Khalid Alvi'	December 30, 2014	Muzaffargarh Thermal Power Station	To discuss the status of Muzaffargarh and progress on remaining items	EPP facilitated Muzaffargarh in getting the foreign exchange allocation and issuance of LC quickly for the remaining items.
Acting CEO Guddu	December 31, 2014	Guddu Thermal Power Station	To schedule the heat rate testing at Guddu Thermal power station	Availability of units were discussed and found that units will be available in Jan 2015. Schedule will be finalized in consultation with PES as well.

Meeting with	Date	Location	Purpose	Outcome/Result
<b>Component 2</b>				
Federal Minister MPNR, Secretary MPNR, ISGS, SSGC, PSO, SNGPL, FGE, WFW, EPP	October 30-31, 2014	Serena Hotel, Islamabad	To hold discussions with Federal Minister MPNR and senior GOP officials from Oct. 30 – 31 to finalize LNG procurement strategy and timelines, review key terms of draft agreements and negotiation items, and agree on specific activities to secure commercially viable LNG cargoes by the commissioning date of the Fast Track LNG terminal.	Final comments on Qatar Gas SPA and draft MSPA, and specific activities to secure commercially viable LNG cargoes by the commissioning date of the Fast Track LNG terminal.
USAID Office of Energy, FGE, WFW and EPP	October 31, 2014	AEAI Offices	To obtain a briefing from consultants regarding progress on LNG procurement, planned activities and to review with EPP support to PQA	USAID were informed about the recent, ongoing and planned activities. Certain guidelines were given by USAID to the consultants and EPP regarding the program and maintaining adequate project tracking, issues addressed and resolved, and to maintain proper documentation of program activities.
PSO, Qatargas (QG), EPP, FGE, WFW	November 16, 2014	Doha, Qatar	Opening negotiations for LNG procurement on a G2G basis with QG, discussion on QG draft SPA.	It was agreed by both parties that PSO would send a letter to QG covering those points that PSO would want adjusted in the draft SPA. Upon receipt, QG would then redraft the SPA [to submit a more serious version to PSO]. PSO would review and prepare a red line version to the extent needed to move forward.  FGE prepared and submitted a revised strategy to GOP for assistance in the next round of negotiations with QG.

Meeting with	Date	Location	Purpose	Outcome/Result
USAID, MPNR representatives, LMKR and NuTech (via telecon)	November 21, 2014	AEAI office	To discuss MPNR's proposal for inclusion of 14 additional wells data in the ongoing Shale Gas Resource Assessment Study.	<p>The request by DGPC/MPNR will be discussed in-house at USAID. In case of USAID approval in principle, MPNR will formally request USAID for additional budget for the Shale Gas study to incorporate data of 14 additional confidential wells.</p> <p>Subject to USAID approval of additional budget/time, LMKR and EPP will make necessary amendments in the Contractual Arrangement to implement the additional testing.</p> <p>Milestone-4 report will be completed but held back pending conclusion of the results of additional testing and analysis. Thereafter, a comprehensive Milestone-4 resource assessment report will be issued which will be presented to upstream oil and gas companies in a workshop.</p> <p>LMKR will be paid for the LOE contribution towards Milestone-4 Interim report.</p> <p>DGPC will provide NOC on urgent basis to save time for collection and export of private confidential domain data to LMKR/NuTech. This will not take more than 2 weeks keeping in view the shipping time.</p> <p>Part work on Component-2, which is not dependent on the final resource assessment, will continue in parallel to save time.</p> <p>Based on the decision of the MPNR, LMKR will request DGPC that OGDCL should issue an invoice cancellation note and provide the additional cores data along with relevant logs for the confidential wells free of cost.</p>

Meeting with	Date	Location	Purpose	Outcome/Result
PETRONAS, MPNR, PSO, ISGS, EPP, FGE	December 1-2, 2014	Islamabad	To initiate negotiations with PETRONAS for LNG procurement under a Government-to-Government arrangement.	<p>LNG supply options from Malaysia under a G2G arrangement were discussed during the meeting.</p> <p>Confidentiality agreement will be signed between PETRONAS and GOP.</p> <p>ISGS will initiate the process of GOP approval for negotiating with PETRONAS under a Government-to-Government arrangement.</p> <p>GOP will review and respond to the timelines provided by PETRONAS for LNG procurement negotiations.</p> <p>GOP will nominate the contact person(s) for negotiations with PETRONAS and communicate the nomination on a priority basis.</p>
USAID, EPP	December 4, 2014	AEAI Conference Room, Islamabad	To discuss the progress of Upstream Oil and Gas programs	<p>For inclusion of gas price in Shale Gas Policy document, guidance from experts in the U.S. could be sought. Further work may be undertaken as to what are the best practices for shale gas pricing.</p> <p>Request for consent for the inclusion of 14 additional wells data in the Shale Gas Assessment will be sent to USAID for approval.</p> <p>RFP for Shale Gas policy framework and report on Minimum Organizational Review for DGPC will be shared with USAID.</p> <p>RFP for the experts to be inducted in the Implementation Unit will be shared with USAID.</p> <p>Examples of the changes proposed to be made in E&amp;P Rules and Policies will be shared with USAID. Such change will hopefully improve the petroleum production.</p> <p>DGPC should be approached to check the context on why they need technology options for production improvements in marginal/depleted fields.</p> <p>A Gantt chart may be submitted to USAID showing the various elements of the program to clear the backlog of pending cases with emphasis on critical path items.</p>

Meeting with	Date	Location	Purpose	Outcome/Result
SSGC, PSO, PQA, EETPL, EPP, WFW	December 15-17, 2014	SSGC Head Office, Karachi	To finalize the Draft & Option Agreements, and MSPA for spot/short term LNG procurement.	Option Agreements will be sent to EETPL lenders following SSGC consent to the final drafts. WFW will follow up. Direct agreements still need to be finalized with EETPL, which will be followed up by WFW. 4 <sup>th</sup> draft version of MSPA will be finalized by WFW/FGE and circulated for stakeholders' input before finalization. Long Stop Date will be extended to January 31, 2015.
Deputy Assistant Secretary (Bob Ichord)	December 9, 2014	AEAI Office	Briefing on EPP Program	Presentation on EPP Discussion on key activities being undertaken
Mr. Zargham Khan (Joint Secretary, MWP)	December 11, 2014	Ministry of Water & Power	Briefing on NTDC & GENCO Performance Contracts	Feedback on meetings with NTDC senior management and GENCO Holding Company Limited (GHCL) Review of Performance Contracts
Mr. Imran (CEO GENCO Holding Company)	December 12, 2014	GHCL Office	Review of GENCO Performance Contracts	Discussion on key items of Contract Feedback given to GHCL on action items and way forward
NTDC Senior Management	December 17, 2014	NTDC Office	Review of Performance Contract	NTDC senior management to review updated Performance Contract and provide comments if applicable Reporting back to MWP on meeting points and providing Performance Contract deliverable to the Joint Secretary.
Mr. Arshad Chaudry (GM CPPA)	December 18, 2014	NTDC Office	Amendment to PPA between WAPDA and NTDC	Discussion on rationale behind amendment Reporting back to MWP to prepare a draft amendment, which can be signed by the relevant parties moving forward.
Deputy Assistant Secretary (Bob Ichord)	December 9, 2014	AEAI Office	Briefing on EPP Program	Presentation on EPP Discussion on key activities being undertaken
Mr. Zargham Khan (Joint Secretary, MWP)	December 11, 2014	Ministry of Water & Power	Briefing on NTDC & GENCO Performance Contracts	Feedback on meetings with NTDC senior management and GHCL Review of Performance Contracts
Mr. Imran (CEO GENCO Holding Company)	December 12, 2014	GHCL Office	Review of GENCO Performance Contracts	Discussion on key items of Contract Feedback given to GHCL on action items and way forward

Meeting with	Date	Location	Purpose	Outcome/Result
NTDC Senior Management	December 17, 2014	NTDC Office	Review of Performance Contract	NTDC senior management to review updated Performance Contract and provide comments if applicable Reporting back to MWP on meeting points and providing Performance Contract deliverable to JS
<b>Component 3</b>				
WAPDA- USAID- EPP	October 02, 2014	EPP Energy House, Islamabad	Discuss Kaitu Weir (and affiliated structures) Project	Validation of project cost and milestone dates for Activity Schedule
WAPDA-USAID - EPP	October 20, 2014	EPP Energy House, Islamabad	Discuss Kaitu Weir (and affiliated structures) Project	Initiate PC I for 132kV transmission line Determine basis for project cost estimate Include 11kV Distribution System
USAID- EPP	October 29, 2014	EPP Energy House, Islamabad	Discuss Kaitu Weir (and affiliated structures) Project	Issues in WAPDA Consultancy agreement with MMP Process for exemption of Duties and Taxes for WAPDA on USAID funded projects
WAPDA- USAID- EPP	November 07, 2014	EPP Energy House, Islamabad	Discuss Kaitu Weir (and affiliated structures) Project	WAPDA to make a new PCI to cover cost of 132kV Transmission Line Provide details of Security costs Land acquisition to be completed Design issues to be addressed
Deputy Assistant Secretary of State	December 09, 2014	EPP Energy House, Islamabad	Presentation on Projects	Update USG/USAID
Mr. Saleem Mirza, Director Projects (North), WAPDA	December 11, 2014	EPP Energy House, Islamabad	Discuss Golan Gol project	Preliminary Review and Assessment Report to USAID
General Manager (North), WAPDA	December 24, 2014	WAPDA House, Peshawar	Discuss Golan Gol project	Further information required, especially cost and expenditure figures for the project
Project Director, Consultant and Contractors	December 24-28, 2014	Golan Gol, Chitral	Review Project	Information being compiled

Meeting with	Date	Location	Purpose	Outcome/Result
<b>Component 4</b>				
CE TSG, NTDC	October 30, 2014	TSG Office, NKLP, LHR	Discuss the activity performed by the Live Line Consultant and their recommendation	<p>CE TSG suggested to add video lectures of the revised procedure to the live line curriculum.</p> <p>He also suggested exchange trip for linemen to go abroad and see the live line works being performed.</p> <p>CE told NTDC would be willing to buy furniture for its Tarbela Training Center rehab as a cost share if EPP agrees to provide them T&amp;P for their center.</p> <p>EPP asked them to add basic electrical theory to the curriculum for live line training.</p> <p>The CE agreed to arrange a trainer and a demonstrator for the upcoming live line training sessions.</p>
SE GSO, IESCO	October 24, 2014	IESCO, Islamabad	Installation of the LEDs at IESCO Control Room	<p>2x Displays were installed at IESCO HQ.</p> <p>Demo of the interface and working of the system was explained to IESCO Engineers.</p> <p>Inputs given by IESCO were noted and shared with NTDC for further refinement of the system.</p>
CE O&M, QESCO	October 20, 2014	QESCO HQ, Quetta	Installation of the LEDs at QESCO Control Room	<p>2x Displays were installed at QESCO HQ.</p> <p>Demo of the interface and working of the system was explained to QESCO Engineers.</p> <p>Inputs given by QESCO were noted and shared with NTDC for further refinement of the system.</p>
SE GSO, SEPCO	October 14, 2014	SEPCO, Sukkur	Installation of the LEDs at SEPCO Control Room	<p>2x Displays were installed at IESCO HQ.</p> <p>Demo of the interface and working of the system was explained to IESCO engineers.</p> <p>Inputs given by IESCO were noted and shared with NTDC for further refinement of the system.</p>

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CE TSG, NTDC	October 30, 2014	TSG Office, NKLP, LHR	Discuss the activity performed by the Live Line Consultant and their recommendation	<p>CE TSG suggested to add video lectures of the revised procedure to the live line curriculum.</p> <p>He also suggested exchange trip for linemen to go abroad and see the live line works being performed.</p> <p>CE told NTDC would be willing to buy furniture for its Tarbela Training Center rehab as a cost share if EPP agrees to provide them T&amp;P for their center.</p> <p>EPP asked them to add basic electrical theory to the curriculum for live line training.</p> <p>The CE agreed to arrange a trainer and a demonstrator for the upcoming live line training sessions.</p>
CE Telecom, NTDC	November 13-14, 2014	WAPDA House, LHR	Discuss SCADA improvement plan	<p>Making a backup path for the existing telecom network is important.</p> <p>The OPGW network, NTDC currently has is poorly designed – it's a linear design and has single point of failure.</p> <p>A discussion focusing on rollout of radio links as a redundant communication path took place.</p>
DG IT, CPPA and XEN Metering, NTDC	November 13	WAPDA House, LHR	DISCOs input on improving interface of Secured Metering System	<p>NTDC agreed on displaying some of the parameters requested by DISCOs.</p> <p>The developer, engaged by NTDC, for maintaining and developing the graphical user interface of the SMS is working on improving the interface.</p>
Planning Executives, NTDC	November 14	WAPDA House, LHR	Inspection of room allocated for housing RTDS	<p>Room is small to house equipment and staff – NTDC has been asked to arrange for bigger space.</p> <p>The room allocated can be extended – the two adjacent rooms are separated using wooden wall, which can be removed to create more room. NTDC will be removing wooden wall by end of next month.</p> <p>Cooling arrangements are not satisfactory for housing RTDS. NTDC has been requested to take care of cooling arrangements.</p>

Meeting with	Date	Location	Purpose	Outcome/Result
CE TSG, NTDC	November 20, 2014	NKLP 220kV GS, LHR	Discuss about Live Line Training Program and Rehab of Tarbela Training Center	Shared the copy of report compiled by Live Line consultants with NTDC. EPP would like to reserve the training center at Tarbela from February 2, 2015. Provision of tools for Tarbela Training Center – EPP may procure a set of tools for Tarbela too.
CE GSO, FESCO	November 21, 2014	FESCO, FSD	Installation of the LEDs at FESCO Control Room	2x Displays were installed at FESCO HQ. Demo of the interface and working of the system was explained to FESCO Engineers. Inputs given by FESCO were noted and shared with NTDC for further refinement of the system.
Member Energy	November 27, 2014	Planning Commission, ISB	Presented on EPP activities and their status	Various studies being carried out by EPP were discussed. Member was updated on ongoing EPP Transmission activities.
GOPA-Intec & Planning NTDC	December 24, 2014	Lahore	To discuss integration of intermittent resources with the national grid	Data required by consultant was discussed – EPP and NTDC will ensure data reaches the consultant in time. Review of inception report was discussed.
PD EHV & XEN EHV, NTDC	December 29, 2014	Islamabad	To discuss Mardan Auto Transformer Project	NTDC will be taking care of plinth modifications. “EPP Transmission” is to write a letter to GM GSC NTDC for shifting the existing damaged transformers to someplace else. Shutdown will be managed by NTDC. It is decided that all the equipment (including transformers) should be delivered @ Mardan and inspection (and other formalities) should be carried out at Mardan.

Meeting with	Date	Location	Purpose	Outcome/Result
CE TSG, NTDC	December 31, 2014	Lahore	<p>To finalize the dates for live line training for SEPCO and MEPCO</p> <p>Discuss the arrangements required at the training center including trainer and demonstrator, issuing of letter for start of training and the matter of signing a PO directly with NTDC for training</p> <p>Share the status of tools recommended to be purchased for Tarbela Training Center for live line training.</p> <p>Requirements to start training at Gatti.</p>	<p>The CE TSG was not able to arrange the trainer and demonstrator, so EPP proposed two individuals suitable for the job and the CE agreed to send a letter to the MD to take the required actions.</p> <p>EPP was still trying to write up a case for tools for Tarbela training center and were hopeful to get USAID approval to provide them.</p> <p>NTDC would be willing to sign the PO for live line training directly with EPP.</p> <p>Gatti needs furniture and a trainer demonstrator, which TSG can arrange on their own.</p> <p>Budget has been approved for the furniture for Tarbela, Gatti and Lahore training centers of TSG and NTDC will be able to procure the furniture in 4 months.</p>
<b>Cross-Cutting</b>				
Thermal O&M training participants	September 03 – October 01, 2014	Thermal Power Station, Muzaffargarh	Conducted focus group discussions with O&M training participants from GENCO III	EPP identified O&M improvements and challenges 6 months after training.
Thermal O&M training participants	October 14–17, 2014	Thermal Power Station, Guddu	Conducted focus group discussions with O&M training participants from GENCO II	EPP identified O&M improvements and challenges 6 months after training.
Training for Pakistan (TFP)	October 15, 2014	Serena Hotel, Islamabad	Attended participant Training Working Group hosted by TFP.	EPP will circulate TFP alumni brief to all participants and work on training EPP staff on ADS and TraiNet standards.

Meeting with	Date	Location	Purpose	Outcome/Result
MSI Jill Tirnauer – Senior Adviser, Lindsay North - Adviser, Himat Ullah – Monitoring Specialist, Javed Rashid – Consultant, and Ahmed Shaikh – Director for Monitoring from MSI	October 24 and 28, 2014	AEAI Office, Islamabad	To introduce newly-hired consultant and the scope of work and to discuss coordination efforts for field visits and other activities.	EPP shared the formula for the calculations of number of beneficiaries, monitoring and evaluation plan and monitoring and evaluation reports related to Tarbela and Jamshoro Thermal Power Station. EPP will provide MSI with points of contact at selected sites.
NTDC Market Operations Exchange training participants	November 14, 2014	AEAI Office, Islamabad	Conduct Security Risk and Fraud inquiry interviews and paperwork for J-1 Visas	All 9 participants and 1 alternated successfully completed all J-1 visa paperwork and SRFI interviews. Participants await R3 approval before receiving DS2019 forms. Travel scheduled for January 11.
Hydro O&M training participants	November 21, 2014	Serena Hotel, Islamabad	Conducted post-evaluations and interviews with O&M training hydro participants.	EPP identified O&M improvements and challenges after the completion of the second batch of participants training.
SAN training participants	November 24, 2014	AEAI Office, Lahore	Conducted focus group discussions with NTDC Grid Operations exchange training participants.	EPP identified SAN improvements and challenges one month after training.
NTDC Grid Operations Exchange training participants	November 25, 2014	AEAI Office, Lahore	Conducted post-evaluations, interviews and action plan review via presentation session with NTDC Grid Operations Exchange training participants, their respective officials and EPP's transmission experts.	EPP identified NTDC Grid Operation improvements and challenges one month after training.
NTDC Commercial Operations Exchange training participants	November 24-25, 2014	WAPDA Office, Lahore	Conducted interviews with the nominated participants for NTDC Commercial Operations Exchange visit to the U.S.	Following shortlisting, EPP will seek USAID approval of 9 participants and 2 alternates before commencing the J-1 Visa process. Through this exchange, EPP aims to improve transmission capacities in Pakistan's power sector while establishing professional relationships to draw upon after the conclusion of the program.

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Jeffrey Shahan, USAID/Pakistan	December 11, 2014	Serena Hotel, Islamabad	Automated Directives System (ADS) Chapter 252 & 253 Workshop	The workshop was held on December 11 from 9:00 am – 4:30 pm. Jeff Shahan, who is the ADS 252 and 253 Policy Advisor from E3 Bureau and is the main drafter of these ADSs, led the training workshop. All types of trainings: US-based, third-country, and in-country trainings were discussed; in addition to the J-1 visa compliance for US-based training participants. Towards the end, certificates were awarded to all the participants in acknowledgment of their participation.
Jeffrey Shahan & Amy Hagan, USAID/Pakistan	December 17, 2014	Marriott Hotel, Islamabad	Fourth Quarterly Participant Training Working Group (PTWG)	Jeff Shahan, Policy Advisor from USAID E3 Bureau in Washington, answered questions about ADS 252 and 253. A presentation on collaboration between TFP and USAID Implementing Partners was given on TFP's scope of work and on USAID's Alumni Small Grants Program.
Training for Pakistan (TFP)	December 17, 2014	AEAI Office, Islamabad	Briefing TFP on EPP's internship program.	TFP was given a presentation on EPP's internship program along with hard and soft copies of requested documents pertaining to executing the program.
Hydro O&M training participants	December 19, 2014	Serena Hotel, Islamabad	Conducted post-evaluations and interviews with O&M training hydro participants.	EPP identified O&M improvements and challenges after the completion of the third batch of participants training.

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