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# ENERGY POLICY PROGRAM MONTHLY PROGRESS REPORT JULY 2014



## AUGUST 2014

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# ENERGY POLICY PROGRAM

## MONTHLY PROGRESS REPORT: JULY 2014

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Cover Photo: Visit to the Guddu, Muzaffargarh Thermal Power Station and PEL Transformer Factory

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# Acronyms

AEAI	Advanced Engineering Associates International
CPGCL	Central Power Generation Company Ltd.
CPPA	Central Power Purchasing Authority
DGPC	Directorate General Petroleum Concessions
DISCO	Distribution Company
EMMP	Environmental Mitigation and Monitoring Plan
EPP	Energy Policy Program
FARA	Fixed Amount Reimbursable Agreement
GENCO	Generation Company
GHCL	GENCO Holding Company Limited
GOP	Government of Pakistan
GTPS	Guddu Thermal Power Station
ISGS	Interstate Gas System
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
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
PESCO	Peshawar Electricity Supply Company
PIL	Project Implementation Letter
PO	Purchase Order
PowerSIM	Power Sector Integrated Model
PPA	Power Purchase Agreement
PQA	Port Qasim Authority
PTF	Power Transformer
RFP	Request for Proposal
SCADA	Supervisory Control and Data Acquisition
SMS	Secured Metering System
SOW	Scope of Work
SSGC	Sui Southern Gas Company
USAID	United States Agency for International Development
WAPDA	Water and Power Development Authority

# Monthly Highlights

The Energy Policy Program (EPP) achieved the following results during the month of July 2014.

Table 1: Monthly Highlights

## Component 1

- EPP assisted USAID in finalizing the 611(e) Action Memorandum to the Mission Director for the Tarbela Rehabilitation Phase-II Project. This project will add 20 MW to the national grid, and increase the reliability and sustainability of the plant.
- WAPDA continues to evaluate bids to provide major equipment (turbines and generators for Units 5 and 6) for the plant. A contract will be awarded once the evaluations have been completed.
- EPP finalized the work plan for the Performance Efficiency Improvement Program. This targeted intervention will focus on sustaining the 270 MW gains achieved with USAID funding, and will improve the plant's operating life.
- EPP met with Pakistan Engineering Services, an Independent Engineer, to schedule the Heat Rate and Current Dependable Capacity Tests for Guddu. EPP has successfully completed the Heat Rate Test at Jamshoro and Muzaffargarh.

## Component 2

- EPP will assist in developing policy papers and conducting analysis through PowerSIM with MWP and the Planning Commission. This work will be undertaken as part of the implementation phase next month. One area of focus is to evaluate oil price increases, and how this affects the financial performance of the sector.
- EPP held a review meeting on July 21, 2014 for the Shale Gas Program with USG and USAID officials. Necessary action is being taken in accordance with the decisions taken during the meeting.
- EPP continued to lend targeted day-to-day advisory support to DGPC on various legal and regulatory issues.
- Pre-award discussions continued during the week with the fourth-ranked bidder for providing Consulting Services for LNG Import Terminals at PQA. Discussions concluded after the bidders expressed their inability to provide foreign consultants that could work in Karachi (second ranked bidder had also demanded a mobilization advance).
- EPP staff prepared a consolidated sheet of year-wise capacity additions in power generation from 2012-13 to 2024-25. The sheet includes thermal and renewable projects, as well as imported energy from different sources except K-Electric.
- EPP staff updated and finalized the Oil and Gas Exploration Section of the 11<sup>th</sup> 5 Year Plan under Vision 2025 of the Government of Pakistan.

## Component 3

- EPP secured contract documents from WAPDA related to the transmission line connecting Allai Khwar to Duber Khwar for onward submission to USAID. These were requested by experts from the U.S. Army Corps of Engineers, who are reviewing project costs for the two Run-of-River (RoR) projects.
- EPP also provided details of all project costs requested by USAID for the RoR Projects.
- EPP provided answers to questions raised by USAID related to budgets, revenues and staffing of the proposed Kaitu Weir Project as well as the two RoR Projects.

## Component 4

- PESCO technical audits of all grid stations have been completed. Final reports of 38 out of 84 grid stations have been compiled (45% completed).
- EPP's Technical Team completed the evaluation for circuit breakers for NTDC and PESCO, and submitted their recommendation to the Procurement Department.
- NTDC technical audits of 26 out of 41 grid stations have been completed (63% completed). Final reports of 20 grid stations have been compiled.

# Progress in Numbers

Indicator	Unit	LOP Target	Achieved as of July 2014	Total Achieved as of July 2014	LOP % Achieved as of July 2014
I.a: GWh of energy sold	GWh	TBD	0	0	0%
I.1.a: Number of beneficiaries with improved energy services due to United States Government assistance	Individuals	13,112,306	0	12,750,884	97%
I.1.b: GWh of energy availability	GWh	7,599	0	7,331,646	96%
I.1.c: MW available to meet power sector demand as a result of USG assistance	MW	1,263	0	1,254.1	99%
I.1.1.a: MW of electrical power added or saved as a result of USG improvements	MW	1,263	0	1,254.1	99%
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.	40	0	105	263% <sup>1</sup>
I.1.1.d: Number of transmission bottlenecks resolved	No.	13	0	83	638% <sup>2</sup>
I.1.4.a: Public and private funds leveraged by the USG for energy infrastructure projects	U.S. \$	48,500,000	0	33,500,000	69%
I.2.b: Percent Change in the Gross Annual Accumulation of circular debt	%	140%	0	0	0%
I.2.1.a: Number of key policies and regulations in various stages	No.	10	0	10	100%
I.2.2.a: Number of policies following international best practices	No.	5	0	2	40%
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%
4.4-8: Number of beneficiaries receiving improved infrastructure services due to USG assistance	Persons	13,112,306	0	12,750,884	97%

<sup>1</sup> EPP anticipates changing I.1.1.c Life of Program target from 40 to 181 installations, operations, and maintenance improvements per recommendation of MSI's data quality assessment.

<sup>2</sup> EPP anticipates change I.1.1.d Life of Program target from 13 to 121 bottlenecks per recommendation of MSI's data quality assessment.

# Planned Activities

EPP will focus on the following high-impact activities in August 2014.

Table 2: Planned Activities

- Addition of 75 MW to the national grid after completion of the reliability test at Guddu Thermal Power Station.
- Inauguration ceremony of Satpara Multipurpose Dam Project with Ambassador Olson.
- Signing of the Activity Agreement for the Phase-II of the Tarbela Rehabilitation Project.

- EPP will finalize a draft reorganization plan for the Energy Wing.
- EPP will populate the database based on the inputs provided. The database will include project features, timelines, costs and benefits.

- EPP will continue to support USAID in reviewing information and identifying and expediting the next step to move quickly towards signing a PIL.
- EPP will continue to work with WAPDA and keep USAID informed of progress.

- Commission 20/26 MVA Chakdara Power Transformer
- Rehabilitate Capacitor Banks at Bannu and Jehangira Grid Stations
- Repair the damaged Transmission Line Towers (132kV and 66kV) in KPK Install and commission the IT equipment being given to NTDC to strengthen SMS

- Storage Area Network training for CPPA will be conducted in August following the delivery and installation of equipment.
- EPP will conduct post-training evaluations for GENCOs I, II, and III related to O&M training in August 2014.
- Gender assessment of key stakeholders and energy sector to be drafted and shared with stakeholders.

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

# Program Overview

EPP is a multi-year, USAID-funded initiative to increase power generation, improve transmission capacity and reliability. EPP works with selected energy enterprises to assist the Government of Pakistan's 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.

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



Figure 1: EPP Phases

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

**Component 1 - Monitoring & support of Project Implementation:** EPP proactively advises and supports USAID and counterparts in the monitoring, implementation, and compliance of Fixed Amount Reimbursement Agreements (FARA) with 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>3</sup> Specifically, EPP provides monitoring and implementation support for seven signature energy projects: four repair and maintenance projects (3 GENCOs and Tarbela); two multipurpose dam completion projects (Gomal Zam and Satpara); and one dam rehabilitation project (Mangla).

**Component 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 secondment of staff to work in the offices of the requesting entity as advisors and specialized support staff.<sup>4</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.

**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>5</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.

<sup>3</sup> C.4.2, Component One, pg. 8 of 46, Contract No: AID-EPP-I-00-03-00004

<sup>4</sup> C.4.3, Component Two, pg. 11 of 46, Contract No: AID-EPP-I-00-03-00004

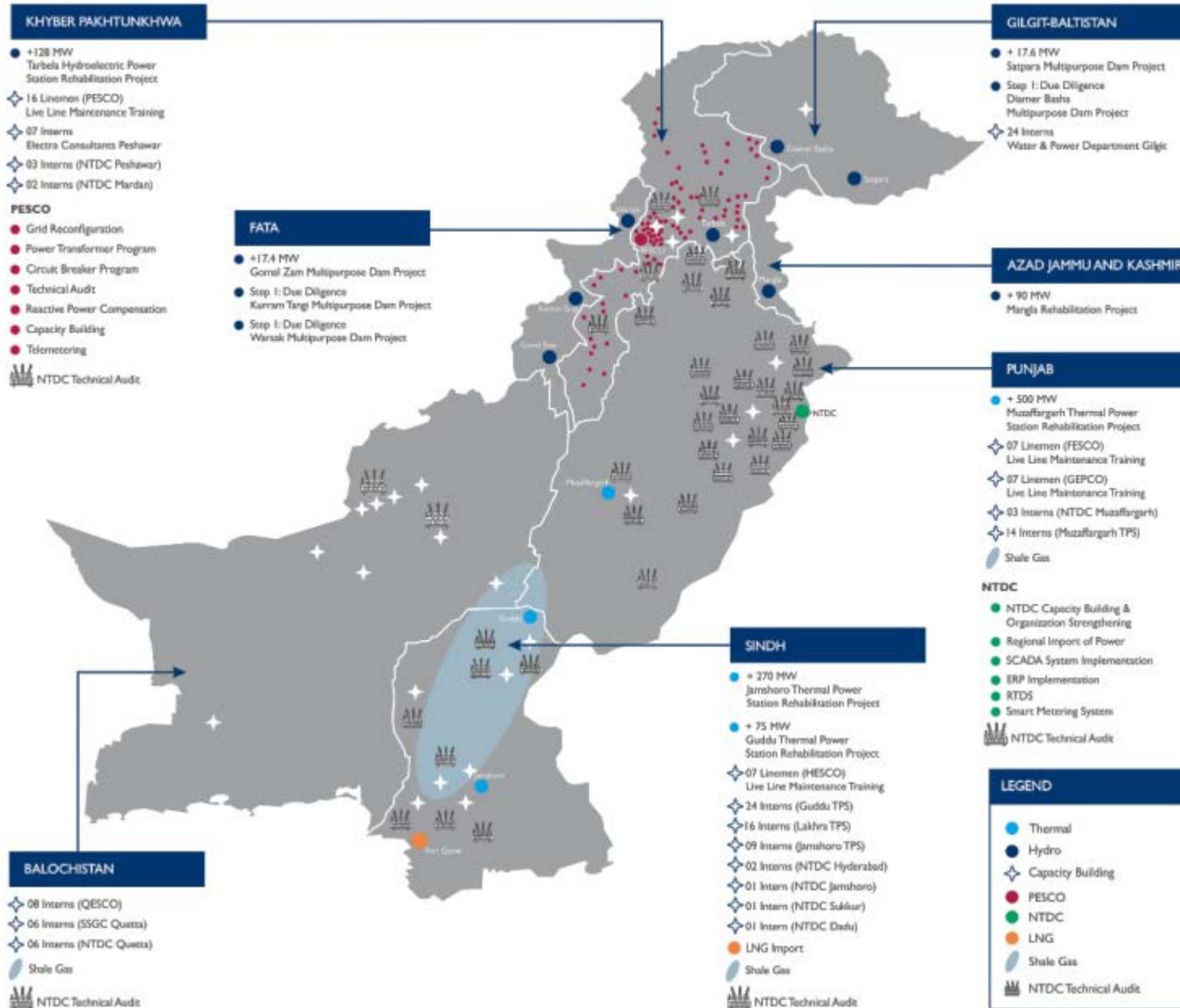
<sup>5</sup> C.4.4, Component Three, pg. 12 of 46, Contract No: AID-EPP-I-00-03-00004

**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 National 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>6</sup>. EPP's capacity building program facilitates sustainability by enhancing local capability in critical areas.

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<sup>6</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



# I. Component I: Project Monitoring & Implementation

EPP provides 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 plant (Tarbela and Mangla), and construction of two new multipurpose dams (Gomal Zam Dam and Satpara Dam). Total USG funding for these projects is U.S. \$291.7 Million (per the revised agreements) that will result in an estimated gain of 953 MW for Pakistan’s national grid.

As of July 2014, U.S. \$146.82 Million has been disbursed to GOP implementing partners, and 933 MW have been added to Pakistan’s national grid. Results achieved through the successful monitoring and implementation of G2G projects are illustrated in the table below:

Table 3: Results Achieved through G2G Projects

Projects	USG Funding (U.S. \$ Million)	Paid (U.S. \$ Million)	Completion Date	MW Gains/Benefits	
				Target	Achieved (Jul 31, 2014)
Tarbela	\$16.50	\$13.95	12/31/14	128.0 MW	128.0 MW
Jamshoro	\$19.32	\$16.39	12/31/14	150.0 MW	270.0 MW
Guddu	\$19.12	\$17.34	12/31/14	75.0 MW	In progress
Muzaffargarh	\$15.77	\$15.14	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>\$146.82</b>		<b>953 MW</b>	<b>933 MW</b>

During this reporting period, the cumulative number of people who have directly benefited from EPP’s efforts stands at 12.75 million, or 7.1% of population.

As of this reporting period, EPP’s efforts have improved the financial performance of energy sector entities by U.S. \$526 Million. This represents approximately 6.0% of 2012’s circular debt.

While no megawatt gains were achieved this reporting period as a result of Component I activities, EPP’s efforts in support of U.S. Government energy infrastructure projects have resulted in 933 MW restored or added to Pakistan’s grid.

## Rehabilitation of Tarbela Hydropower Plant

During the reporting period, EPP helped USAID finalize the Activity Agreement for the Tarbela Rehabilitation Project (Phase –II). EPP also met with WAPDA to discuss the payment mechanism and payment schedule for the project. USAID is considering providing \$25 Million for Phase-II of the Tarbela Rehabilitation Project. This funding will aid the replacement of additional equipment that will add to the plant’s reliability and sustainability, and enhance its lifespan by at least 15-20 years. An additional 20 megawatts, or approximately 60 GWh of energy, and oil savings of \$12 Million per year are expected as a result of Phase-II efforts.

The rehabilitation work, to date, has resulted in the restoration of 128 MW. The replacement of the generator windings at Units 1, 3 and 4, and the installation of relief valve seals, guides and pumps are now complete. Digital governors have also been installed and commissioned at Units 3, 4, 5, 6, 7 and

9. Further, shutdown for the installations of the remaining four digital governors will take place during the “lean flow period” in October of this year. The digital governors will aid in the smooth operation of the power station.

In order to expedite the procurement of the remaining three items (spare winding, SCADA System, small drainage pump), EPP discussed their status with WAPDA.

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

Of the U.S. \$16.5 Million committed for Tarbela, the total disbursement as of July 2014 was U.S. \$13.95 Million.

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



Figure 3: Gomal Zam Multipurpose Dam Project Power House

inaugurated by U.S. Ambassador Olson in September 2013.

With U.S. \$45 Million in funding committed, USAID supported WAPDA in the completion of the main dam, powerhouse, and 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. The power generated by the dam is enough to meet the electricity consumption needs of 161,000 individuals. The project is now complete, and was

### Satpara Multipurpose Dam Project (Project Completed)



Figure 4: Satpara Multipurpose Dam Project

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 U.S. \$26 Million in committed funding has been disbursed to the GOP.

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 163,000 individuals.

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

## Muzaffargarh Thermal Power Station Rehabilitation Project

EPP's support to Muzaffargarh Thermal Power Station (MTPS) has added 500 MW to the national grid. This is enough electricity to supply 4.63 million people. Major equipment has been installed and rehabilitated, and the procurement of remaining equipment required is in process.

In order to expedite the procurement of the remaining equipment, EPP met with plant management and discussed their status.

With an amendment to the Activity Agreement, the project completion date has been extended to December 31, 2014. As of June 2014, out of the obligated amount of U.S. \$15.77 Million, the total amount disbursed to the GOP stands at U.S. \$15.14 Million.



Figure 5: Control Room of MTPS Unit No. 6

## Jamshoro Thermal Power Station Rehabilitation Project

USAID-funded rehabilitation efforts at Jamshoro Thermal Power Station (JTPS) have resulted in the restoration of 270 MW of power generation capacity, which exceeds the project's objective of 150 MW. During the reporting period, EPP continued to support JTPS in expediting the procurement process to obtain the remaining equipment, and minimize delays in rehabilitation work. With EPP's support, USAID revised the Activity Agreement and extended the project completion date to December 31, 2014.

In order to expedite the procurement of the remaining equipment, EPP met with plant management and discussed their status. EPP also supported JTPS in processing a tax exemption from USAID for equipment worth U.S. \$189,200.

As of July 2014, out of the obligated amount of U.S. \$19.32 Million, the total amount disbursed to the GOP stands at U.S. \$16.38 Million for JTPS.

## Rehabilitation of Guddu Thermal Power Station

In July, rehabilitation work to uprate three turbines (GT-7, GT-8 and ST-5) was completed; and all three turbines were commissioned and underwent test runs to ensure their reliability. After undergoing tests, the turbines will be capable runoff running at maximum capacity, and will add another 75 MW to the national grid; enough to supply electricity to 600,000 people.

In response to CPGCL's extension request, EPP helped USAID review



Figure 6: Guddu Thermal Power Station

the Activity Agreement and extend the project completion date to December 31, 2014. The total amount disbursed to the GOP as of July 2014 was U.S. \$17.34 Million.

## Mangla Dam Rehabilitation Project

EPP supported USAID in finalizing and signing the Project Implementation Letter (PIL), which was signed in March. Subsequently, EPP supported WAPDA in regularizing the Mangla Assignment Account through the State Bank of Pakistan, and the first payment of U.S. \$13 Million was transferred to the account.

USAID is providing U.S. \$150 Million to the GOP for the Mangla Dam Rehabilitation Project, out of which U.S. \$72 Million was sub-obligated under an Activity Agreement signed on August 15, 2013. USAID will upgrade Units 5 and 6, as these units are of the most degraded. USAID will also fund the balance of the plant's units. This support will improve Mangla's efficiency, and extend the productive life of all 10 units.



Figure 7: Generators of Mangla Power Station

During this reporting period, bids were opened for the procurement of major equipment (turbine and Generator for Units 5 and 6), and bid evaluations commenced. A contract will be awarded after the completion of the evaluation.

USAID anticipates an additional 90 MW of power generating capacity through this rehabilitation work.

Per the Activity Agreement, the project completion date is December 31, 2017, and the total amount disbursed to the GOP as of May 2014 is U.S. \$13 Million.

## 1.1 GENCOs Performance Efficiency Improvement Program

Having achieved substantial and highly-visible results through the replacement of equipment that resulted in increased power generation capacity and efficiency improvements, EPP is now focused on improving the commercial operations of the GENCOs. In this regard, EPP provides support to the GENCOs to conduct NEPRA-compliant heat rate tests. These tests will enable them to obtain a revised tariff that will reflect the actual costs they incur in producing electricity. The net result of this effort will be an increase in annual revenues through fuel saving of U.S. \$75 Million.

In July, EPP continued working-level discussions with JPCL regarding USAID support for improving the commercial and technical performance of GENCOs. The Performance Efficiency Improvement Plan is being finalized in consultation with JPCL. As part of a rapid assessment of the functional areas where support could be provided, EPP prepared an action plan which focused on sustaining the megawatt gains achieved with USAID funding, and to improve the plant's operating life.

### Procurement of Flow Meters

The procurement of the flow meters for the three GENCOs is complete. These meters were critical in ensuring that accurate instruments are in place prior to conducting NEPRA-compliant heat rate tests.

## Heat Rate and Dependable Capacity Testing

Heat rate tests have been completed at Muzaffargarh and Jamshoro and achieved U.S. \$70 Million in annual fuel savings. With EPP support, a revised tariff petition has been filed with NEPRA for Jamshoro.



Figure 8: Heat Rate Tests being Conducted at Muzaffargarh and Jamshoro Thermal Power Plants

## 1.2 U.S.-Pakistan Energy Sector Business Opportunities Meeting Featuring the Diamer Bhasha Dam Project

During this reporting period, EPP was asked by the Office of Afghanistan and Pakistan Affairs (OAPA) and USAID Pakistan's Energy Office to organize a one-day business forum featuring the Diamer Bhasha Dam Project. As background, The Diamer Bhasha Dam Project (DBDP) has been declared as a top priority project by the GOP. The DBDP offers many benefits. Once completed, the GOP expects that the DBDP will provide 4,500 MW of power generation capacity, help alleviate acute electricity shortages, provide a storage capacity of 8.1 million acre-feet, and expand the GOP's ability to address chronic water shortages in the Indus Basin Irrigation System. DBDP will also enhance the life of downstream Tarbela Dam's reservoir by 35 years by reducing sedimentation and increasing its annual output by approximately 1,100 GWh.

EPP, in concert with the United States Energy Association, the U.S. – Pakistan Business Council (USPBC), and the U.S. Chamber of Commerce, developed a concept note for review by OAPA and the Energy Office. EPP's concept note highlighted the need for the conference to assist the GOP and USG leadership in understanding the requirements for managing, financing, and delivering the Diamer Bhasha mega-dam project, and provide a credible forum for U.S. companies and investors to learn about and provide comments on how to enhance the range of opportunities available to them through the successful development of the DBDP project.

On July 22, 2014, Contracting Officer Dale Lewis issued a letter of concurrence authorizing EPP to organize the conference. After further discussions with OAPA, the Energy Office, the U.S Chamber of Commerce and the USPBC, EPP proposed broadening the conference's agenda to attract hydropower equipment and service suppliers, EPC contractors, potential debt and equity investors, and other finance agencies.

Scheduled for October 8, 2014, the U.S.-Pakistan Energy Sector Business Opportunities Meeting featuring the Diamer Bhasha Dam Project will feature USAID Administrator Rajiv Shah and GOP Finance Minister Mohammad Ishaq Dar as conference co-chairs.

Other USG agencies such as USEXIM, OPIC, USTDA, State; as well as multi-lateral officials will be invited to attend. The conference will be an important commercial and diplomatic effort to demonstrate USG support for the GOP's efforts for the Diamer Bhasha Project.

The meeting will also benefit the GOP by enabling it to gather feedback from industry representatives and financial institutions on what steps may need to be taken to enable financing of such a large hydropower project a financial reality.

### 1.3 Issues/Constraints and Steps Taken To Resolve Them

- The procurement of the remaining equipment at Muzaffargarh, Jamshoro, Guddu and Tarbela Projects is underway. EPP met with WAPDA and plant management to expedite this process.
- Sustainability of the newly-installed turbines (GT-7, GT-8 and ST-5) at Guddu continues to be monitored to ensure that they are operating properly.
- Identification of a Hydropower Project Development Expert and a Hydropower Project Finance Expert in support of the U.S.-Pakistan Energy Sector Business Opportunities Meeting featuring the Diamer Bhasha Dam Project is ongoing. EPP has identified 17 candidates, and is in the process of rapidly assessing which two meet the requisite qualifications, availability and best value to contribute to the conference.

## 2. Component 2: Policy and Reform

EPP supports energy sector reform through one of two basic mechanisms: the direct undertaking of specific activities requested by one or more GOP energy entities; and direct institutional support through the secondment of to work in the offices of the requesting energy sector entity as advisors and specialized support staff. In both cases, the respective request for support must be made to the COR and be approved by USAID.

### 2.1 Support to Ministry of Water and Power

During this 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 for 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 (and reduce over-dependence on the GOP budget), and mitigate future growth in demand for more energy services.

#### Improved Policy Implementation

Pakistan is moving to allow private sector participation in power transmission as part of boarder sector reform efforts. EPP provided continuing support this period to help the GOP make progress towards finalizing this important policy.

#### More Autonomous Energy Sector Entities

During this reporting period, EPP provided direct institutional support through the secondment and partial secondment of staff to work in the offices of requesting energy sector entities as advisors and specialized support staff. The purpose of this direct support promotes increased capacity of decision makers and supports their efforts to more autonomously develop and implement reforms in power generation, transmission and fuel-related elements of the GOP's Energy Sector Reform Program.

Specifically, EPP worked with GOP owned and operated power sector entities, NTDC and the GENCOs to improve efficiency, improve operational and management functions, and to strengthen them to perform more autonomously from the Ministry of Water and Power. Direct support provided during this reporting period included:

- Power Purchase Agreements: EPP has reviewed the second draft of the PPA's which contained inputs from the generation experts at the GENCOs. This draft will be sent out for stakeholder comments in early August. The new contracts are designed to mimic commercial contracts, providing greater transparency and accountability.
- EPP has received and reviewed the NTDC/CPPA-G Business Transfer Agreement. Major concerns center around the misallocation of center around the misallocation of risk between parties, asset allocation and liabilities.

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

Policy decisions in Pakistan are often made without the benefit of detailed quantitative analysis. To better prepare senior decision makers, EPP has developed a tool (**PowerSIM**) for analyzing how key policy, regulatory and operational parameters impact important sector performance indicators such as circular debt, cash flow, generation, end-use quantities of electricity and tariffs.

- During the reporting period, PowerSIM was upgraded and made more useful with the help of feedback from various stakeholders. Specifically, EPP undertook the following enhancements to PowerSIM:
  - The Transmission Module output was developed with the help of EPP’s Transmission Team. This output sheet will show details on how much transformation capacity additions will be required on each voltage level assuming new generation comes online.
  - More refined user inputs for tariff data, reduced number of input sheets.
  - Validation checks.
  - Detailed updates on “Using the Model” section such as adding a new power plant, changing key parameters, and their impact on the model.
  - Update of the Data Sourcing table to enable users to update data per their requirements.
  - Detailed descriptions of the Key Output Modules, such as Circular Debt, with an explanation of the output, as well as the key components and how they are calculated.
- The model and the user manual will be sent to GOP entities and customized training will be conducted for the Planning Commission and the Ministry of Finance in August.

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

No issues or constraints were faced during the reporting period.

## Planned Activities for the Coming Month

### Improved Policy Implementation

EPP will assist in developing any policy papers or related analysis through the PowerSIM with MWP and the Planning Commission. This will be done as part of the implementation phase next month. One area of focus is to evaluate oil price increases and how they affect the financials of the sector.

### More Autonomous Energy Sector Entities

- Draft PPA/FSA will be circulated among key stakeholders.
- Meeting with NTDC to discuss its role in separation of NTDC.
- Further Discussions with PDIP on the BTA to separate NTDC and CPPA.
- EPP will act as “Owner’s Engineer” for NTDC as they engage a consultant to perform an organizational blue print and human resources plan to transform the company from a public entity into a corporate entity.

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

- A presentation will be given to the newly appointed JS Development at Ministry of Water & Power.
- The Power SIM model and user manual has been completed and is set to be rolled out after EID. Trainings will initially be held at Planning Commission Energy Wing and will focus on assistance in developing policy papers and doing analytical research.
- At the Ministry of Water and Power, a hands-on training session will be held with Section Officers and the application of the Power SIM will be shown.

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

EPP continued work on NEPRA’s Diagnostic Analysis of the Regulatory Framework. The comments received from various stakeholders are being examined by the committee constituted by the Ministry of Finance. EPP was asked to support this effort by the Ministry of Finance, which has taken the lead in pursuing a decision on the framework from the Council of Common Interest.

## 2.2 Support to Ministry of Finance

During this reporting period, EPP provided support to the Ministry of Finance’s Corporate Finance Wing in preparing their views and comments on the Draft Policy Framework for Private Sector

Transmission Line Projects. These comments will be submitted by the Ministry of Water and Power to ECC for their approval.

EPP also provided support in preparing the Corporate Finance Wing's views and comments on the Draft Security Documents for investment in Solar Power Generation Projects, prepared by AEDB. These documents will be submitted by Ministry of Water and Power to ECC for their approval after obtaining input from all stakeholders.

Work continued in lending support as the Ministry prepared their comments on the Draft Summary for ECC submitted by the Ministry of Petroleum and Natural Resources regarding revisions of the Mari Wellhead Gas Pricing Agreement. This proposal seeks to change the present gas pricing formula to a cost plus formula with crude oil pricing already allowed for PPL. The proposals from Ministry of Water and Power are being reexamined in light of further information provided by the Ministry of Petroleum and Natural Resources raised at a meeting held on June 6, 2014.

Other direct support this period included:

- Support in preparing the Corporate Finance Wing's views and comments on the summary for ECC submitted by the Ministry of Petroleum and Natural Resources regarding streamlining the pricing mechanism for locally-produced LNG.
- Support in preparing the Corporate Finance Wing's views and comments on the summary for ECC submitted by the Ministry of Water and Power regarding the Security Package for generation of electricity through biomass.
- Support in preparing the Corporate Finance Wing's views and comments on the draft summary for the ECC submitted by the Ministry of Petroleum and Natural Resources regarding the construction of a gas pipeline to connect imported LNG with the existing gas companies' network. The imported LNG will be supplied through the distribution companies' network after regasification.
- Support was lent in preparing a note for the Corporate Finance Wing and the Economic Reforms Unit of the Ministry of Finance for the Secretary, Finance, focused on Private Investment in the Power Sector.

EPP's ongoing support to the Ministry of Finance has helped increased key decision-makers' capacity to independently formulate their views and prepare comments on various policy issues that impact Pakistan's power sector.

## Impact

- Assistance provided by EPP helped the Ministry of Finance to formulate their views and comments on various policy issues that help mitigate Pakistan's power crisis.

## Issues Constraints

- No constraints were faced during the reporting period.

## Planned Activities for the Coming Month

- Assistance will be provided to examine and formulate views on the policy proposals submitted by the energy sector ministries and entities to the Ministry of Finance.
- Monitoring of Power Sector Circular Debt.

## 2.3 Support to Ministry of Petroleum & Natural Resources

During this reporting period, EPP continued to provide technical assistance in support of the Ministry of Petroleum and Natural Resources (MPNR) and the GOP for USAID pre-approved activities, including but not limited to, Liquefied Natural Gas (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:

## LNG Imports

- Pre-award discussions with the top three-ranked bidders for providing consulting services for LNG import terminals to PQA concluded after the bidders expressed their inability to field foreign consultants in Karachi. Discussions were initiated with the fourth-ranked bidder following approval from EPP's Procurement Committee.
- Pre-award discussions were finalized with the selected bidders for providing legal and commercial and technical advisory services for LNG procurement. Requests for Consent and Delivery Orders were drafted for the two firms and sent to USAID for approval. Following USAID approval, Delivery Orders and subcontracts were issued.
- Evaluation of bids submitted for conducting the Full Mission Bridge Simulation Study for PQA was finalized. Pre-award discussions will be initiated in August.
- A Skype call was held on July 24, 2014 with the commercial consultant selected for LNG procurement at MPNR. The meeting was chaired by the Minister and attended by officials from EPP, MPNR, ISGS, SSGC, PSO, and SNGPL. It was decided to proceed with the program on an immediate basis. A kick-off meeting with the commercial and legal team was proposed for August 12, 2014 subject to the consultants obtaining visas.

## Shale Gas

- Work on Milestone 3 at NuTech labs continued during the reporting period. An Interim Report on Milestone 3 was submitted, and following EPP's review, LMKR sent back a revised version of the report.
- Review of confidential well-data from OGDCL and PPL by LMKR (in consultation with NuTech) was completed. The review identified the depths against which core plugs are required to undertake the analysis.
- Upon DGPC's request, OGDCL, PPL, and UEPL provided the core and cuttings data for confidential wells to LMKR. This data is being shipped to NuTech labs in Houston. UEPL has also been requested to provide the relevant well logs for evaluation purposes.
- Training of DGPC professionals on GGX software was completed in July.
- LMKR submitted their visit report from their trip to NuTech's labs.
- LMKR prepared and submitted a tentative program to DGPC for a week-long field visit to NuTech labs in August 2014 for three DGPC and MPNR officials.
- Nominations of three MPNR officials for a field visit to Houston in August 2014 were received from DGPC. Travel is now being finalized prior to seeking USAID approval.

## Upstream Oil and Gas Support

- EPP provided DGPC with day-to-day advisory support on various legal and regulatory issues.
- Weekly progress review meetings were held with PTS consultants throughout the month, where outstanding cases were reviewed.
- The Draft Supplemental Agreement for policy conversions and the revised Draft Flare Gas Policy were sent by DGPC to PPEPCA for input. PTS's legal consultant held a discussion with PPEPCA on the Draft Supplemental Agreement for policies conversion. Following this discussion, EPP and the PTS legal consultant met to discuss and decide on the inclusion of PPEPCA's comments in the Draft Supplemental Agreement. A revised Draft Supplemental Agreement for policy conversion was sent to PPEPCA for additional comments and their endorsement.
- EPP executed its second contract modification with PTS. A long-term foreign consultant was replaced with a new professional on July 12, 2014 at PTS's request.
- A letter was written to PTS regarding deliverables and their impact on invoicing, as well as the overall performance of foreign consultants.

- A revised RQ-2 covering the six month work plan was drafted and sent to PTS for comments.
- PTS labor invoices for the months of May and June 2014 were processed against acceptable deliverables.
- Per the discussion held with the Law Division on July 18, 2014 regarding the amendment in the Rules to extend leases, a revised Draft Notification was offered to DGPC for onward transmission to the Law Division.

## Issues/Constraints and Steps Taken to Resolve those Issues

**LNG:** The first, second and third-ranked bidders for providing consulting services for LNG import terminals at Port Qasim declined to accept the award due to security concerns. Pre-award negotiations were subsequently initiated with the fourth-ranked bidder with the approval of Procurement Department.

**Shale Gas:** The Provision of selected confidential wells' cores and cuttings data from OGDCL and PPL was delayed due to the approval process. The cores were selected based on the evaluation of the well log data provided by the companies. Due to the intervention of EPP and persuasive follow up, the companies provided the core samples for the selected wells. These samples have been exported to NuTech Labs in Houston. In addition, EPP, in coordination with DGPC, has also obtained confidential well cuttings data from UEPL, which was also sent to Houston.

LMKR received an invoice for the well cores received from OGDCL. The invoiced amount of U.S. \$170,200 is excessive; therefore, LMKR has raised the issue with DGPC, requesting to receive the data free of cost. Absent LMKR's request, the cost cannot be included in the study at the invoiced rate.

OGDCL was also reluctant to provide the Basin Study Report to LMKR. DGPC was approached to assist in the matter. At the direction of DGPC, LMKR has reviewed the Basin Study Report, and relevant extracts of the report have been requested by OGDCL. A request letter to that effect has been forwarded by DGPC to OGDCL.

**Upstream Oil & Gas Support:** There is a serious constraint of manpower at DGPC. The issue was discussed with DGPC and the Secretary and the Advisor at MPNR. This constraint impedes progress on work under Work Area 4 (advisory support on day-to-day issues). Subsequently, a presentation was also delivered following a meeting of USAID officials with the Secretary, MPNR, on July 16, 2014.

The timeline for implementing some activities in the work plan has been missed due to the delayed visit of the foreign consultants. DGPC is also reluctant to allow the resident consultants to meet the E&P companies, which can further delay the implementation of the program. Therefore, a mid-course revision in the work plan has been prepared and sent to PTS for comments before finalization.

## Planned Activities for the Coming Month

- **LNG:** Signing of a subcontract for providing consulting services for LNG import terminals at Port Qasim; signing of a subcontract for the Full Mission Bridge Simulation Study for PQA; issuance of the first Task Orders to commercial and legal advisors for LNG procurement; kick-off meeting with selected legal and commercial advisors for LNG procurement.
- **Shale Gas:** Completion of Milestone 4 and commencement of Component 2.
- **Upstream Oil & Gas Support:** Finalization of the Draft Model Supplemental Agreement for conversion of policies.

## 2.4 Support to Ministry of Planning and Development

EPP provided ongoing technical assistance to the Acting Senior Chief (Energy) in the following areas:

- Prepared a consolidated list of capacity additions in power generation from 2012-13 to 2024-25. The list covers yearly capacity additions in thermal, renewable and imported energy, but does not include capacity additions by K-Electric.
- Prepared a brief for the Minister and Secretary for Planning, Development and Reform on Issuance of NOC's for new CNG stations by OGRA despite the ban imposed by the government. The brief proposed official investigations on all 1481 NOC's issued after the ban, with the aim of discovering who was involved in the process of converting these Provisional Licenses into Marketing Licenses.
- Prepared a list of upcoming power generation projects for the Secretary, Ministry of Planning, Development and Reform. The list includes thermal and renewable projects, as well as imported energy from different sources. Based on the list, EPP developed a draft presentation on Pakistan's current energy mix, comparing the current composition of resources and estimating their importance up to 2025.
- Prepared a list of oil and gas exploratory wells drilled in Pakistan since 1947 for the Energy Chapter of 11<sup>th</sup> 5 Year Development Plan (2013-18) under the "Pakistan Vision 2025" initiative. The analysis breaks down the number of drills carried out since 1947, oil and gas discoveries, and subsequent procedures that were performed on the remaining unsuccessful drills. Finally, this list analyzes the yearly trends trend of total number of drills and their success ratio.
- Drafted comments for the Chief (Energy) on the Policy Framework For Private Sector Transmission Line Projects as requested by the Private Power and Infrastructure Board and Ministry of Water and Power.

**Reorganization of the Energy Wing:** To facilitate improved coordination of energy sector plans, policies and investments, the Energy Wing (EW) needs to be reorganized and enhanced. EPP is assisting the EW in developing the framework for the new entity, and this will be used in developing a PC-I, the GOP mechanism to approve major spending. EPP held several meetings with the EW during the month to discuss major components of the PC -I, such as enhanced manpower levels and tools, and to set forth the mandate and mission of the Energy Wing.

**Hydropower Database:** The Planning Commission (PC) has a mandate to approve hydro projects beyond a certain cost. The Energy Wing at PC has requested EPP's support in the development of a database that may be used for comparisons while approving similar projects.

### Planning Commission

- EPP lent ongoing assistance to Planning Commission for the Power Sector Chapter of the 5 Year Plan.
- EPP lent ongoing assistance to the Planning Commission on PowerSIM and other analytical tools.

### Issues Constraints

- No constraints were faced during the reporting period.

### Planned Activities for the Coming Month

**Reorganization of the Energy Wing:** EPP will finalize a draft reorganization plan for the Energy Wing.

**Hydropower Database:** The Planning Commission will provide the required documents for data extraction for the database. EPP will populate the database based on the inputs provided. The database will include project features, timelines, costs and benefits.

### 3. Component 3: New Projects, Planning and Development

EPP's Component 3 undertakes due diligence of candidate projects to provide the information required to reduce USG risks and develop Project Implementation Agreements for selected projects. At USAID/Pakistan's direction, EPP follows a two-step Due Diligence Process. The two steps are:

**Step 1** - The focus of activities under Step 1 is on gathering and analyzing existing documents and other information concerning candidate projects. The objective of this step is to develop a good basic understanding of the project and its status, including cost estimates and schedules. The information gathered and analyzed during this step serves as a basis for a tentative USG decision to support or not support the respective project.

**Step 2** - The focus of activities under Step 2 is on a gathering, analyzing, and presenting the additional information required for a definitive USG decision to support or not support a project including validation of costs estimates from Step 1.

Step 2 reports recommend the type and level of USG support. Additionally, it identifies when the support is required and recommends the mechanism through which the support should be provided.

#### Run-of-River (RoR)

EPP provided information, advice and cost details to USAID regarding the two Run-of-River (RoR) Allai Khwar and Duber Khwar projects.

During the reporting period, EPP assisted USAID brief a team from U.S. Army Corps of Engineers (USACE) on the two RoR projects. EPP also helped answer USACE's many questions, and provided detailed information on the projects. The USACE Team has been tasked to review project costs. EPP subsequently responded to many follow on questions, helped prepare briefing papers and provided specific information requested by the USACE experts on various aspects of the projects, including copies of PCI and contracts.

#### Kurram Tangi/Kaitu Weir Project

EPP continued to provide advice, clarifications and details regarding the plans and costs associated with the Kaitu Weir Project. This is Component I of the Kurram Tangi Dam project, which has been divided into three components to facilitate funding by USAID and other donors. USAID is currently considering funding Component I. Component II covers the Dam and Reservoir, whereas



Figure 9: Kurram Tangi/Kaitu Weir site

Component III covers Irrigation Canals in the Bannu area. Together, these three components form the Kurram Tangi Dam project.

Experts from the US Army Corp of Engineers are assisting USAID review the projects, and EPP has briefed them on the projects currently under consideration by USAID. EPP responded to many follow on questions, helped prepare briefing papers and provided specific information requested by the USACE experts on various aspects of the projects, including copies of the PCI for Component I of the

project, and information from the comprehensive Environmental Study for the Kurram Tangi Dam project completed by MWH in 2013.

EPP continued its regular update meetings with WAPDA to keep current on activities on the Kaitu Weir project, and has informed USAID that the GOP and WAPDA seem to be of the view that in light of ongoing military operations in the area, the construction contract be awarded to FWO on a sole source basis to expedite work at site. EPP has also been informed that USAID and representatives from Italy's donor agency have met with EAD to discuss funding for the Kaitu Weir project.

### 3.1 Additional Support to USAID

EPP also assisted USAID in responding to questions and issues raised by reviewers in Washington D.C. on USAID plans to fund WAPDA for the completion of on-going and new construction projects under Component 3.

### 3.2 Issues/Constraints and Steps Taken to Resolve Them

The USACE experts are reviewing the costs of the two RoR projects that were initiated more than a decade ago, and have undergone substantial delays owing to 3 force majeure events – the Earthquake of 2005, sectarian riots, site evacuations in 2007, and the floods of 2010. During this period, official inflation figures in Pakistan have hovered close to 10%, while foreign exchange rates have gone from less than Rs 60 to U.S. \$1.00 to Rs 100 to \$1.00. The project costs have doubled as a result of these factors. With project costs divided almost equally between local and foreign currency, it will be difficult to quickly and accurately assess and explain variations in costs of various elements of these two projects.

EPP continues to describe and explain the issues and constraints related to providing accurate cost information. USACE's experts have expressed appreciation to EPP for their efforts in providing the best available information given the events described above.

### 3.3 Anticipated Activities for the Next Reporting Period

An Activity Agreement and related PIL to provide funds for the two RoR projects are overdue. USAID and WAPDA are in discussions, and EPP proposes to respond quickly to assist them in accomplishing this task.

EPP has advised USAID that WAPDA needs to establish a Kaitu Weir Project Office in Spinwam in North Waziristan to demonstrate their ability to start the project. EPP will continue to work with WAPDA and keep USAID informed of progress.

## 4. Component 4: New Activities

New Activities and an expanded scope to EPP's work were identified to respond to the Government of Pakistan's efforts to address the current energy crisis and the severe load shedding that adversely affects all sectors of Pakistan's economy. Due to the magnitude of the energy crisis in Pakistan, EPP's New Activities Component seeks to accelerate efforts that assist USAID in increasing energy supplied to the economy. EPP delivers this support in a way that builds the capacity of the GOP to ultimately continue these activities without external support, and with a bias toward utilizing the personnel of the generation companies and transmission system, including DISCOs and transmission operation and maintenance staff, to perform this work

### 4.1 Transmission

#### PESCO

To date, 321.1 MW of transmission throughput capacity has been added to PESCO's network as a result of EPP's assistance (capacity added in the reporting month: 0 MVA).

#### Technical Audits

Audit reports continue to be compiled. At present, 38 out of 84 (approximately 45%) reports have been compiled. All substations have already been audited, and the reports highlight the shortcomings and bottlenecks found; and recommend preventive and corrective measures.

#### Power Transformer Program

- Seven oil sample results were received and analyzed this period. To date, 176 of 203 (approximately 87%) oil samples have been analyzed. The results indicate required maintenance to increase the lifespan of the transformers.
- An SOW for the procurement of two oil purification plants was prepared. The procurement process is due to start next month. Once delivered, the plants will help PESCO in prolonging the life of their transformers.

#### NTDC Technical Audits

To date, 20 audit reports have been compiled. The reports propose the necessary steps for carrying out both preventive and corrective maintenances; and also recommend infrastructure upgrades and augmentation where necessary. A total of 26 out of 41 substations have been audited (approximately 63%).

#### IT Support for Secured Metering System (SMS)

The recently-procured Storage Area Network (SAN), Servers, UPS's and other associated equipment were delivered to NTDC this reporting period. The assembly, installation and commissioning of the system will commence in early August. The system will help NTDC improve its commercial operations. EPP anticipates that the system will be functional by the end of August.



Figure 10: Secured Metering System Panels

#### Auto Transformers

- The technical evaluations of bids received for two new Auto Transformers for NTDC was completed this month. Once installed and commissioned, these transformers will add a total of 500 MW of throughput capacity to NTDC's system.

- The technical evaluation for circuit breakers for NTDC and PESCO was completed and submitted to EPP's Procurement Department for action. The circuit breakers will help NTDC and PESCO more safely operate their systems.

### Issues/Constraints and Steps Taken to Resolve Them

- The Shahibagh Power Transformer that EPP repaired through HEC encountered an oil leak. HEC was engaged to undertake the necessary repairs under EPP and PESCO supervision. The transformer now runs properly.
- The Hattar Power Transformer oil leak issue was discussed with PEL. After detailed deliberations, EPP and PEL agreed on the method for carrying out the required maintenance. The issue will now be discussed with PESCO, and the maintenance is likely to take place in August.
- As part of the extension of SMS to DISCOs, LED Display Panels will be given to all DISCOs. NTDC had written letters to the DISCOs asking them to accept the panels and allocate space for their installation in the control rooms. None of the DISCOs have responded yet, and EPP will raise the matter with NTDC.

## 4.2 Anticipated Activities for the Next Reporting Period

- Conduct maintenance to repair the oil leak problem at Hattar
- Handover of P&I mobile vans and T&P to PESCO
- Commission 20/26 MVA Chakdara Power Transformer
- Rehabilitate Capacitor Banks at Bannu and Jehangira Grid Stations
- Repair the damaged Transmission Line Towers (132kV and 66kV) in KPK
- Install and commission the IT equipment being given to NTDC to strengthen SMS

## 5. Cross-Cutting Activities

### 5.1 Capacity Building

#### Best Practices in Thermal Operations and Maintenance Training

EPP completed the training report for the Best Practices in Thermal O&M training. EPP will follow up with participants from the training in August to review course assignments and measure the effects of training on O&M improvements.



*“My basic motivation to attend this training is my quest for the power sector and my passion to continue my career in this sector. The training helped me improve my knowledge especially on generation side of the energy sector which was missing in the theory, I studied. Following this training, I consider myself capable enough to carry out any task related to the operations and maintenance of the power plant even if this is located in far flung area, I learned new techniques to improve the efficiency of the power plants.”*

Hemal Falak, a recent graduate of NUST – SEecs

#### Best Practices in Hydro Operations & Maintenance Training

USAID approved EPP’s vendor for Hydro O&M training; therefore, EPP requested revised nominations from WAPDA. The first training program is tentatively scheduled for October 2014. The O&M training program will include modules on operational excellence, instrumentation protection and controls, SCADA system, generator protection, and digital governors

#### NTDC and CPPA Support

EPP initiated the J-1 visa process and hosted a paper work session in Lahore for participants of the Executive Exchange for Best Practices in Grid Operations planned for October 2014. EPP entered details into TraiNet, and arranged the mandatory Security Risk and Fraud Inquiry (SRFI) interview with USAID’s Energy Office. EPP will verify that the information is correct, and send the applications to the Mission for approval by the R3 in early August 2014.



Figure 11: Participants Filling Out J-1 Visa Paperwork in Lahore

EPP continues to develop a Design Department Rehabilitation and Capacity Building scope of work that will increase NTDC’s design capacity; and its ability to better deliver transmission improvements.

EPP continued to work with Storage Area Network providers to develop training curriculum for CPPA. Training is anticipated to commence in mid-August.

## DISCO Live Line Maintenance Training

EPP is also developing a curriculum to coincide with the delivery of the tools and trucks to the four previously-trained DISCOs (HESCO, GEPCO, FESCO, and PESCO). The refresher course is tentatively scheduled for September 2014. EPP is developing the scope of work for the Live Line Training course to be delivered to the five remaining DISCOs (IESCO, QESCO, LESCO, SEPCO, and MEPCO). Live Line Maintenance training will provide each DISCO with a crew capable of conducting routine maintenance and safety standards that will reduce line losses and increase in revenue.

## LNG

EPP advertised for service providers for the LNG Business and Management Intensive Training Program to support LNG stakeholder understanding of port and commercial operations with site visits. EPP anticipates a third country or U.S.-based program to be delivered in December 2014.

## 5.2 Gender Activities

### Gender Equality Assessment

EPP is in the process of compiling partner-provided baseline data into a comprehensive report that will be reviewed by USAID. Following the assessment report, EPP will deliver an assessment and strategy for enhanced gender integration in Pakistan's energy sector. In order to draft the strategy, EPP advertised for a Short-Term Gender Specialist position to design and deliver a strategic plan for gender interventions that can be implemented by energy supply stakeholders.

### Female Participation in Training Activities

EPP continues to promote female participation in all capacity building activities, and recently selected four females to participate in the upcoming NTDC Grid Operations exchange out of nine participants. Additionally, EPP will reach out to Islamabad-based engineering universities to obtain female nominations to participate in the Best Practices in Hydel O&M Training tentatively scheduled for October 2014.

## 5.3 Monitoring & Evaluation

### Interim Performance Evaluation and M&E Plan Update

EPP prepared data and submitted information into PakInfo for FY2014 Quarter 3 for USAID's review. EPP finalized edits to the M&E Plan and is awaiting USAID logical framework inputs before submitting to USAID's Energy Office. Additionally, EPP is working with USAID and MSI to conduct an Interim Performance Evaluation.

### Site Visits

EPP developed a post-training report on O&M GENCO's training series. The comprehensive report will be shared with USAID for review and feedback in early August 2014. Additionally, EPP will conduct the post-training evaluations at GENCOs I, II, and III in August 2014. The purpose of these site visits is to review O&M training outcomes, as well as to verify installations of equipment that have resulted in MW gains.

## 5.4 Issues/Constraints and Steps Taken to Resolve Them

- EPP attempted to retrieve gender baseline data from MWP and MPNR during July and has still not received inputs. EPP has since met with counterparts at both ministries and identified points of contact regarding data and anticipates inputs in August.

## 5.5 Anticipated Activities for the Next Reporting Period

- Storage Area Network training for CPPA will be conducted in August following the delivery and installation of equipment.
- EPP will conduct post-training evaluations for GENCOs I, II, and III related to O&M training in August 2014.
- PowerSIM Training for PC will be conducted in August – Date to be determined. EPP will monitor and evaluate PowerSIM progress at MPNR following the delivery of Power SIM model.
- Gender assessment of key stakeholders and energy sector to be drafted and shared with stakeholders.
- Hiring of a Short Term Gender Specialist to design and develop the gender strategy.
- Identification and selection of the for service providers for the LNG Business and Management Intensive Training Program.
- EPP data quality verification visit to PESCO.

Submission of J-I visas to VCS for NTDC Grid Operations Exchange. EPP anticipates nominations from NTDC for remaining exchange visits in August.



*“The training program will be extremely advantageous and will augment the working techniques in a much more positive and improved way. I would like to request EPP to arrange a similar training for the decision making personnel, so that they can take better operations and maintenance related decision when proposed by middle management”*

Ali Jafar, Deputy Director Technical at Northern Power Generation Company Limited

## 6. Communications

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

### 6.1 Outreach Material

To strengthen communications and outreach efforts, the Communications Team began collecting data that will help develop Success Stories and Fact Sheets. The team also supported the publication of several procurements and job advertisements in local and international newspapers.

During the reporting period, detailed job descriptions and RFP's were uploaded to EPP's website.

The following outreach materials were produced during the month of July.

- DRAFT Success Story: Thermal O&M Training (to be submitted to DOCS for review)
- DRAFT Success Story: Live Line Training Program (to be submitted to DOCS for review)
- Updated the seven G2G Factsheets (to be submitted to DOCS for review)

During the reporting period, EPP's Communications Team developed and deployed an HTML-based daily e-news roundup highlighting local press stories related to Pakistan's power sector.

### 6.2 Reports

The Communications Team provided appropriate USAID branding and marking for the following EPP-generated reports:

- Rapid Environmental Analysis Allai Khwar Run-of-River Hydroelectric Power Project.
- Rapid Environmental Analysis Duber Khwar Run-of-River Hydroelectric Power Project.
- Live Line Trainee Assessment Report - PESCO, GEPCO, HESCO AND FESCO: April - May 2014.
- Monitoring and Evaluation Plan: October 2013 – October 2015

### 6.3 Anticipated Activities for the Next Reporting Period

The Communications Team, in coordination with DOC and WAPDA, will help organize the Satpara Multipurpose Dam Opening Ceremony on August 28, 2014 in Skardu.

**Confidential information redacted**

## Finance

Payroll maintenance and reconciliations with the previous reporting periods was completed; and miscellaneous technical payments were made to vendors. The following administrative functions were also completed.

- Time Sheets (Islamabad, Lahore and Peshawar)
- Per Diem Calculations (Islamabad, Lahore)
- Overtime Calculations (Islamabad, Lahore and Peshawar)
- Deductions (Mobile and Others) (Islamabad, Lahore and Peshawar)
- Transfer advice preparations (Islamabad, Lahore and Peshawar)
- Pay Slips for the month of May 2014 (Islamabad, Lahore and Peshawar)
- Technical Payments (Foreign Wires)
- Leave Record (Islamabad, Peshawar and Lahore)
- C) Health Insurance and Card Issuance (Islamabad, Peshawar and Lahore)
- D) Monitoring of Mobile and OPD/IP Ceilings (Islamabad, Peshawar and Lahore)
- E) Interviews conducted for the positions advertised.
- F) Life Insurance of AEAI employees.

## Logistics

Logistical support was provided for 50 trips made by project staff. International travel for expatriate staff was arranged.

## Human Resources

During this reporting period, the Human Resources Department completed the recruitment and hiring of the following staff:

- Amir Hadi, Senior Software Engineer, June 4, 2014 (Contractual)

## Procurement

- Split AC 1.5 ton and split AC 2.0 ton for Peshawar Office.
- 4 Lenovo B5400 laptops for four program staff members (Invoice #5002).
- Sony VAIO SVF15N17SB Laptop for COP (Invoice #SIT/AMC/288987)
- Revolving chairs for Islamabad Office's main conference room (Invoice #135)

## 7.2 IT

During this reporting period, the following tasks were undertaken by IT:

Procurement & Installation	Troubleshooting & IT Support	Maintenance
<ul style="list-style-type: none"> <li>• 4 IBM Lenovo B-5400 laptops procured for new employees.</li> <li>• 1 HP 4525dn black toner was purchased for the Lahore Office.</li> <li>• 1 HP 5525dn black toner was purchase for the Islamabad Office.</li> <li>• 5 Users' Kaspersky Internet Security Licenses were renewed.</li> <li>• 1 Samsung Galaxy Grand 2 cellular phone purchased for the Islamabad Office.</li> <li>• Miscellaneous IT Accessories such as USB Optical Mouse, cables, power adapters, laptop bags, etc., were also purchased.</li> </ul>	<ul style="list-style-type: none"> <li>• Bio-metric time and attendance machine troubleshooting and centralized network management.</li> <li>• QuickBooks Accounting and Point of Sale software support for Islamabad and Peshawar Offices.</li> <li>• CCTV System Management for Peshawar, Islamabad and expatriates guesthouses.</li> <li>• Troubleshooting of (AEAI, Islamabad Office, Ministry of Finance, NPCC, Lahore Office and Peshawar Office) network printers and complete track of</li> </ul>	<ul style="list-style-type: none"> <li>• E-mail configuration and setup on newly-purchased Samsung smartphones.</li> <li>• Installation, Configuration and e-mail setup on 6 Laptops.</li> <li>• House 6 and House 17 cabling work for Internet, telephone and video services (digital hd-boxes).</li> <li>• Tracking of 19 official eVo Internet devices monthly recharges.</li> </ul>

Procurement & Installation	Troubleshooting & IT Support	Maintenance
	<p>cartridges and toner replacements.</p> <ul style="list-style-type: none"> <li>• Monthly attendant backup activity for Outlook e-mail communications.</li> <li>• IT support to all program staff, including seconded staff and third party contractors, working at ministries, NPCC and DGPC.</li> <li>• 24/7 Internet, telephone and video services support to expatriates guesthouses in Islamabad and Peshawar.</li> <li>• E-mail server management of ep-ep.com.pk domain and BlackBerry services administration and support for all program staff.</li> <li>• Complete monthly payroll and large official documents scanning and archiving.</li> <li>• Ongoing assistance to Administration and Finance Department to maintain a functional database and record of travel authorizations and leave application forms.</li> <li>• Daily routine hardware, software, systems and network support for all program staff.</li> <li>• Request for Proposals support and groundwork for all IT-related procurements.</li> </ul>	

## 8. Procurement

Table 5: Completed Procurement

Item	Achieved or Completed	Targets LOP	% Completion
Procurement Contracts (U.S. \$ Million)	17.83	37.88	47.07

Table 6: Purchase Orders Issued during the Month

Progress/ Activities	Impacts	Issues/ Constraints	Resolving Issues
<b>Comprehensive Insurance for 09 Double Cabin:</b> Purchase Order issued for comprehensive insurance for 09 double Cabin with Trailers. <b>Total Amount USD 8,084.</b>	N/A	N/A	N/A
<b>45 kV Generator for Guest House:</b> Purchase Order issued to M/s Synergy Corporation for procurement 45 kV Generator Guest House. <b>Total Amount USD 16,207.</b>	N/A	N/A	N/A
<b>Transportation of Radiators:</b> Purchase Order issued to M/s Nimra & Co. Transport Company for transportation of 42 Radiators from Lahore to Chakdara Grid Station. <b>Total Amount USD 1,071.</b>	N/A	N/A	N/A
<b>Consultancy for O&amp;M Hydro Training:</b> Sub Contract/Delivery order issued to Energo Consult Praha for O&M Hydro Training. <b>Total Amount USD 136,000.</b>	N/A	N/A	N/A
<b>Legal Advisory Services for LNG Procurement:</b> Sub Contract/Delivery order issued to M/s Watson, Farley and Williams for Legal Advisory Services for LNG Procurement. <b>Total Amount USD 1,650,000.</b>	N/A	N/A	N/A
<b>Commercial and Technical Advisory Services for LNG Procurement:</b> Sub Contract/Delivery order issued to M/s East West Consultants International Ltd. for Commercial and Technical Advisory Services for LNG Procurement. <b>Total Amount USD 1,000,000.</b>	N/A	N/A	N/A
<b>Live Line Consultancy Services:</b> Sub Contract/Delivery order issued to M/s MITSA International for Live Line Consultancy Services. <b>Total Amount USD 44,700.</b>	N/A	N/A	N/A

### Work Continued

- Telescopic Bucket Truck:** Technical and financial evaluation completed and sent to USAID for Consent for Telescopic Bucket Truck Approx. Amount **USD 231,558.**
- Hilux Pickups 4x4 M/T for Transmission:** USAID approved this procurement. HO signed the PO by June 30, 2014. Correspondence with vendor in process regarding duties issues. Approx. Amount **USD 270,000.**
- 220/132kV-250MVA Three Phase Auto Transformers:** Technical and financial evaluation completed, draft PO preparation in process. Approx. Amount **USD 2.8 Million.**
- Repair of damaged Towers:** We received and opened Best and Final Offer Request (BAFO) from bidders and bidding in process and deadline is July 22, 2014. Approx. Amount **USD 300,000.**

5. **Tool & Equipment for PESCO T&G Department:** Technical Evaluation completed and financial evaluation in process. Approx. Amount **USD 450,000.**
6. **Port Qasim Authority Consultancy Service:** Financial and technical evaluations completed. Negotiations with consultants in process. Approx. **USD 1,500,000.**
7. **Simulation Study Service:** Financial Evaluations in Process. Approx. Amount **USD 250,000.**
8. **Replacement of 20/26 MVA PTF at 132kV Chakdara:** Bids opened and financial evaluation in process for Replacement of 20/26 MVA Power Transformer at 132 kV Grid Station Chakdara. Amount **USD 15,000.**
9. **Study for Enhancement of Transmission Capacity of NTDC:** Technical Bids Opened for consultancy for Study for enhancement of transmission capacity of NTDC's 500kV Transmission System by the application of Series Compensation and Technical Evaluation in process. Approx. Amount **USD 50,000.**
10. **Augmentation of 10/13 MVA PTF at 132kV Khawazakhela GS:** Bids opened and procurement in process for Augmentation of 10/13 MVA Power Transformer at 132kV Grid Station Khawazakhela. Amount **USD 22,000.**
11. Dismantling and removal of 31.5/40 MVA Power Transformer: Bids received. Approx. Amount **USD 5,584.**
12. **4 Sets of 220kV & 27 Sets of 132 kV Circuit Breakers:** Technical Bids opened for supply of 4 sets of 220kV & 27 sets of 132 kV Circuit Breakers for NTDC & PESCO respectively and Technical Evaluation in process. Amount **USD 1.13 Million.**
13. **Training for Power SIM Model for Ministry of Petroleum:** Training in process Power SIM. Amount **USD 4,500.**
14. **LNG Business Management Intensive Training Program:** Request for Proposal under process. Amount **USD 165,975.**
15. **Consultancy for Study to determine the limit of Integrating Intermittent Renewable (Wind & Solar) Resources onto Pakistan National Grids:** Request for Proposal uploaded at EPP website with closing date August 11, 2014. Amount **USD 70,000.**
16. **Real Time Digital Simulator for NTDC:** Request for Proposal uploaded at EPP Website with closing date August 15, 2014. Amount **USD 500,000.**
17. **Bus Disconnecter, Current Transformer and Surge Arrestors:** Request for Proposal uploaded at EPP Website with closing date August 20, 2014 for supply of Bus Disconnecter, Current Transformers and Surge Arrestors for Mardan and Nishatabad GS to be delivered at NTDC Warehouse Gatti. Amount **USD 300,000.**
18. **Custom Clearance and Transportation of Live Line Tool Trailers:** Request for Proposal in process with closing date July 23, 2014 for Custom Clearance and Transportation with Transit Insurance for 09 Live line Tool Trailers. Amount **PKR 01 Million.**
19. **Hardware and Software for NTDC Design Department:** Request for Proposal in process with closing date August 18, 2014 for Hardware and Software with Training for NTDC Design Department. Amount **USD 700,000.**
20. **Personal Protective Equipment (PPE):** Request for Proposal in process for Supply of Personal Protective Equipment (PPE) for Live Line Trainers. Amount **USD 48,000.**
21. **Supply of Hardware Connectors and Conductors for NTDC Mardan & Nishatabad GS:** Request for Proposal in process for Supply of Hardware Connectors and Conductors for NTDC Mardan and Nishatabad Grid Stations. Amount **USD 300,000.**
22. **Technical Assistance for Monitoring and Auditing:** Request for Proposal in process for T.A. for Monitoring and Auditing Implementation Compliance of EDF and EMMP for Hydroelectric Power Plants, Transmission and LNG Activities. Amount **PKR 2,500,000.**

### Planned Activities for the Next Month

1. Purchase order for Hilux Pickups 4x4 M/T for Transmission.
2. Purchase order for Repair of Damaged Towers.
3. Purchase order for Telescopic Bucket Trucks.
4. Purchase order for 220/132kV-250MVA Three Phase two Auto Transformers.
5. Purchase order for Tool & Equipment for PESCO T&G Department.

6. Bid evaluation process for Telescopic Bucket Trucks.
7. Bid evaluation process for Repair of Damaged Towers.
8. Bid evaluation process for 220/132kV-250MVA Three Phase two Auto Transformers.
9. Bid evaluation process for Tool & Equipment for PESCO T&G Department.
10. Bid evaluation process for supply of 4 sets of 220kV & 27 sets of 132 kV Circuit Breakers for NTDC & PESCO.
11. Bid evaluation process for Training for Power SIM Model for Ministry of Petroleum: Training in process Power SIM.
12. Bid evaluation process for LNG Business Management Intensive Training Program.
13. Bid evaluation process for Consultancy for Study to determine the limit of Integrating Intermittent Renewable (Wind & Solar) Resources onto Pakistan National Grids.
14. Bid evaluation process for Real Time Digital Simulator for NTDC.
15. Bid evaluation process for supply of Bus Disconnectors, Current Transformers and Surge Arrestors for Mardan and Nishatabad GS to be delivered at NTDC Warehouse Gatti.
16. Bid evaluation process for Custom Clearance and Transportation with Transit Insurance for 09 Live line Tool Trailers.
17. Bid evaluation process for Hardware and Software with Training for NTDC Design Department.
18. Request for Proposal in process for Supply of Personal Protective Equipment (PPE) for Live Line Trainers.
19. Request for Proposal in process for Supply of Hardware Connectors and Conductors for NTDC Mardan and Nishatabad Grid Stations.
20. Request for Proposal in process for Technical Assistance for Monitoring and Auditing Implementation Compliance of EDF and EMMP for Hydroelectric Power Plants, Transmission and LNG Activities.
21. Follow-up for delivery of SAN & Equipment and Training for NTDC.
22. Inventory Tagging and arranging Material Receiving Report (MRR) for delivered goods.
23. Duty free custom clearance of partial delivery of tools & equipment for P&I Vans for PESCO.

## 9. List of Key Meetings

Table 7: List of Key Meetings Conducted in July

Meeting with	Date	Location	Purpose	Outcome/Result
Mr. Carlos Guerra (USAID)	July 01, 11 and 24, 2014	EPP	Meeting on Power SIM	<ul style="list-style-type: none"> <li>• Provided update on Power SIM status and discussion of current status</li> <li>• Discussion on training schedule/implementation plan for August 2014.</li> </ul>
NTDC Board of Directors	July 06, 2014	NPCC Office, Islamabad	Brief Board members on the value and role of planning at the NTDC	<ul style="list-style-type: none"> <li>• Boards members with non-technical backgrounds better understand the job of the NTDC planning function and the challenges they face in planning for a reliable transmission system as new generation is added and customer demand grows</li> </ul>
USAID/USG	July 08, 2014	Energy House EPP	Review of DGPC organizational setup	<ul style="list-style-type: none"> <li>• USAID, in order to consider funding Policy Implementation Cell, which would help streamlining DGPC approval process and disposal of pending cases, asked for quantifying return in terms of additional gas volumes.</li> </ul>
GM (GSO) NTDC	July 08, 2014	WAPDA House, Lahore	<ul style="list-style-type: none"> <li>• Progress of audit activities</li> <li>• Audit of transmission lines of NTDC</li> <li>• NTDC's review of EPP's audit reports</li> <li>• Present and future issues of transmission network of NTDC</li> </ul>	<ul style="list-style-type: none"> <li>• Two technical audit reports were given to NTDC GSO and they will provide their feedback within 4 weeks</li> </ul>
Member Power, GM hydel	July 10, 2014	WAPDA House, Lahore	To discuss the Mangla & RoR Projects	<ul style="list-style-type: none"> <li>• WAPDA was advised to expedite the procurements</li> </ul>
Ms. Samar Ihsan Beg (Joint Secretary Development, MWP)	July 14, 2014	Ministry of Water and Power	Introductory Meeting with the newly appointed Joint Secretary	<ul style="list-style-type: none"> <li>• Introduction of EPP activities and support provided to MWP</li> <li>• Follow-up meeting after EID to discuss areas of support</li> </ul>

Meeting with	Date	Location	Purpose	Outcome/Result
USAID contractor (Training for Pakistan)	July 15, 2014	Islamabad	To assist USAID contractor in understanding the WAPDA organizational structure	<ul style="list-style-type: none"> <li>Briefed about WAPDA and its structure</li> </ul>
Carlos, Matt	July 16, 2014	EPP Islamabad Office	To discuss the GENCOs progress	<ul style="list-style-type: none"> <li>Briefed about the GENCOs progress</li> </ul>
GM North	July 17, 2014	WAPDA House, Lahore	To collect the RoR documents requested by USACE	<ul style="list-style-type: none"> <li>Provided USAID the required documents</li> </ul>
Manager (Wind) AEDB (Alternate Energy Development Board)	July 17, 2014	AEDB, Islamabad	<ul style="list-style-type: none"> <li>Status of upcoming wind power plants (WPP)</li> <li>Environmental clearance for the WPPs was confirmed</li> </ul>	<ul style="list-style-type: none"> <li>The updated status of all WPPs was received</li> <li>They confirmed the associated environmental approvals for the WPPs</li> </ul>
Aziz Khan, GM Shahid Hamid, Director Durrani, Project Director, Kurram Tangi	July 18, 2014	EPP Islamabad Office	Update on Kaitu Weir Project	<ul style="list-style-type: none"> <li>EAD of GoP has met with funding agency of Italy, along with USAID, to fund the Kaitu Weir project</li> <li>FATA and WAPDA are thinking of awarding contract to FWO to start the project in light of ongoing Military Action in the area</li> </ul>
USAID	July 21, 2014	Energy House EPP	Review of Shale Gas Resource and Technology assessment program and progress update	<ul style="list-style-type: none"> <li>USAID advised that the LMKR program should not recommend a price (or pricing structure) of Shale Gas at well-head. Similarly, Shale Gas price (or pricing structure) should not be recommended as part of any policy framework to be developed by USAID funded programs.</li> <li>USAID clearance would be taken prior to any Scope of Work or guidelines for development of a Shale Gas Policy or Framework.</li> <li>Final Report on Resource Assessment (to be finalized by end August or early September 2014) would be forwarded to USAID for review prior to submission to GOP.</li> </ul>
Carlos	July 22, 2014	EPP Islamabad Office	To discuss the Guddu Power Plant	<ul style="list-style-type: none"> <li>Brief about Guddu Power Plant was Provided to Mr. Carlos</li> </ul>

Meeting with	Date	Location	Purpose	Outcome/Result
Ms. Samar Ihsan Beg (Joint Secretary Development, MWP)	July 22, 2014	Ministry of Water and Power	Meeting on Assessing Gender & Baseline Data in the Energy Sector	<ul style="list-style-type: none"> <li>• Introduction to gender based study being conducted by EPP</li> <li>• Provided Gender Survey to JS for completion</li> </ul>
MPNR, ISGS, SSGC, SNGPL, PSO, FGE	July 24, 2014	Ministry of Petroleum & Natural Resources	Introductory Skype call with commercial & technical consultant selected for LNG procurement	<ul style="list-style-type: none"> <li>• The consultants would immediately begin providing assistance to GOP agencies for LNG procurement.</li> <li>• A kick-off meeting with legal and commercial consultants for LNG procurement would be held on August 5-6, 2014 subject to issuance of visa to the foreign consultants.</li> </ul>
CEO Muzaffargarh, Technical Manager, Manager Procurement	July 25, 2014	Muzaffargarh TPS	To discuss the request made by Muzaffargarh to reduce the quantity	<ul style="list-style-type: none"> <li>• Documents collected from Muzaffargarh</li> </ul>
Mr. Arshad Malik	July 07, 14, 17, 21, 22 and 23, 2014	Energy Wing, Planning Commission.	<ul style="list-style-type: none"> <li>• Discussions on PC's Request for support in development of a Concept paper and PC-I for institutional strengthening of Energy Wing</li> <li>• Support in Development of a Hydro Data base</li> </ul>	<ul style="list-style-type: none"> <li>• Initial draft concept paper under preparation.</li> <li>• Components of Hydro database have been finalized.</li> </ul>
PES, NPGCL	July 23-24, 2014	PES Office Lahore	To discuss the observations on heat rate test report	<ul style="list-style-type: none"> <li>• NPGCL will provide the supporting documents for correction</li> </ul>

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