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# ENERGY POLICY PROGRAM MONTHLY PROGRESS REPORT APRIL 2014



May 2014

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# ENERGY POLICY PROGRAM

## MONTHLY PROGRESS REPORT: APRIL 2014

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Cover Photo: Acting USAID Energy Office Director Tim Moore and EPP Chief of Party Jim Hicks with a participant who attended the recent Thermal O&M Training Program

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# ACRONYMS

AEAI	Advanced Engineering Associates International
CPGCL	Central Power Generation Company Ltd
DGPC	Directorate General Petroleum Concessions
DISCO	Distribution Company
EMMP	Environmental Mitigation and Monitoring Plan
EPP	Energy Policy Program
FARA	Fixed Amount Reimbursable Agreement
FAT	Factory Acceptance Test
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
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
Power-SIM	Power System Integrated Model
PPA	Power Purchase Agreement
PQA	Port Qasim Authority
PTF	Power Transformer
RFP	Request for Proposal
RPC	Reactive Power Compensation
SCADA	Supervisory Control and Data Acquisition
SMS	Secured Metering System
SOW	Scope of Work
SSGC	Sui Southern Gas Company
TPS	Thermal Power Station
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 April 2014.

Table 1: Monthly Highlights – Impacts, Issues and Proposed Activities

Item	Program Activity	Comments
Impacts:	Component 1	<ul style="list-style-type: none"> <li>G2G: USAID approved the Environmental Monitoring and Mitigation Plan for Tarbela’s Rehabilitation Phase II.</li> <li>G2G: Digital Governors were commissioned at Unit 6 of the Tarbela Hydroelectric Power Plant.</li> <li>G2G: Rehabilitation progressed at Guddu Thermal Power Station.</li> <li>G2G: Environmental audits were conducted at Tarbela, Muzaffargarh, Jamshoro and Guddu.</li> </ul>
Impacts:	Component 2:	<ul style="list-style-type: none"> <li>The LSA was signed between SSGC and ETPL on April 30, 2014.</li> <li>An introductory meeting introducing the Power SIM was held with MPNR, Ministry of Planning and Development, and the Federal Flood Commission.</li> </ul>
Impacts:	Component 3	<ul style="list-style-type: none"> <li>EPP assisted USAID in their visit to the Mangla Power Station as part of an ongoing reassessment of WAPDA’s institutional systems and capacity to implement USAID-funded projects.</li> </ul>
Impacts:	Component 4	<ul style="list-style-type: none"> <li>PESCO: Successful repair of transformer for Gadoon Amazi Grid Station</li> <li>PESCO: 2 145kV circuit breakers were installed.</li> <li>NTDC Technical Audits: 4 additional audits were completed.</li> </ul>
Impacts:	Cross – Cutting	<ul style="list-style-type: none"> <li>20 GECCO staff were trained on Thermal O&amp;M practices.</li> </ul>
Issues	Component 2:	<ul style="list-style-type: none"> <li>Construction Supervision for LNG import terminal</li> <li>NDA for updating/calibrating of Power SIM</li> <li>Accessibility to latest data for uploading on Power SIM</li> <li>Stakeholders’ nominations and comments on TORs for navigation simulation studies from PQA are still awaited despite regular follow up.</li> </ul>
Constraints	Personnel Work plan Contract	<ul style="list-style-type: none"> <li>Additional long-term personnel are required for LNG-related activities and Policy Reform efforts under Component II. Short-term personnel are required for capacity building, gender, and Monitoring and Evaluation (M&amp;E) efforts.</li> <li>EPP’s work plan must be updated to accurately reflect current and future activities.</li> <li>A contract modification is required to address the Model DISCO activity.</li> </ul>
Proposed New Activities	LNG Support Shale Gas Capacity Building Gender Assessment GENCOs and Hydels	<ul style="list-style-type: none"> <li>LNG Capacity Building for SSGC and PQA: Additional legal support is required for the “Fast Track” LNG Import Project.</li> <li>Completion of Milestone II</li> <li>A TNA is required for LNG and NTDC-related efforts.</li> <li>O&amp;M training for thermal and hydel plants will move forward as planned.</li> </ul>

# PROGRESS IN NUMBERS

Indicator	Unit	LOP Target	Achieved as of March 2014	Achieved as of April 2014	LOP % Achieved as of April 2014
I.a: GWh of energy sold	GWh		0	0	0%
I.1.a: Number of beneficiaries with improved energy services due to United States Government assistance	Individuals	13,112,306	11,714,246	0	89%
I.1.b: GWh of energy availability	GWh	7,599	6,793	0	89%
I.1.c: MW available to meet power sector demand as a result of USG assistance	MW	1,263	1,173	0	93%
I.1.1.a: MW of electrical power added or saved as a result of USG improvements	MW	1,263	1,173	0	93%
I.1.1.b: Efficiency of thermal power plant tests completed	No.	3	2	0	67%
I.1.1.c: Number of USG supported installations and operations and maintenance improvements	No.	40	73	0	183%
I.1.1.d: Number of transmission bottlenecks resolved	No.	13	3	0	23%
I.1.4.a: Public and private funds leveraged by the USG for energy infrastructure projects	USD	\$48,000,000	\$33,000,000	0	69%
I.2.b: Percent Change in the Gross Annual Accumulation of circular debt	%	140%	162%	0	116%
I.2.1.a: Number of key policies and regulations in various stages	No.	10	7	1	80%
I.2.2.a: Number of policies following international best practices	No.	5	1	0	20%
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	3	0	30%
I.2.4.b: Number of public forums resulting from USG assistance in which government officials and citizens interact	No.	12	5	0	42%
4.4-8: Number of beneficiaries receiving improved infrastructure services due to USG assistance	Individuals	13,112,306	11,714,246	0	89%

# PLANNED ACTIVITIES

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

Table 2: Planned Activities

## Component I

- Continue providing support to the ongoing G2G-related activities (Tarbela, Mangla, Jamshoro, Guddu and Muzaffargarh)

## Component II

- Continue providing implementation support of the August 2013 National Power Policy
- Rollout the Power System Integrated Model (Power SIM) to relevant partner organizations and stakeholders. This will include training activities to ensure results-oriented leveraging of the model, and long-term sustainability.

## Component III

- Provide support to USAID in conducting due diligence for upcoming hydel projects.

## Component IV

- Complete the approved technical audits, procurements, and installations for PESCO.
- Finalize and complete the approved procurements for NTDC, including the Enterprise Resource Planning (ERP) software, Real Time Digital Simulator (RTDC), and design center enhancement project.
- Perform the shale gas resource and technical assessment.
- Provide continued and targeted implementation support to the 2012 E&P policy.
- Facilitate and support the “Fast Track” LNG Import Project.

## Cross – Cutting Activities

- Continue to provide best practice-driven implementation support for all program components.
- Continue to plan impact-oriented capacity building interventions that promote sustainability of EPP’s objectives.

## Communications

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

**Component II – Advice and Support of Energy Sector Policy Reform:** EPP actively supports energy sector reform by undertaking activities that are requested by one or more GOP entities and by the direct secondment of staff to work in the offices of the requesting entity as advisors and specialized support staff.<sup>2</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 III – New Projects, Planning and Development:** Based on frequently changing priorities and schedules of USAID and USG entities, EPP undertakes due diligence of projects and activities that are candidates for USG support.<sup>3</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>1</sup> C.4.2, Component One, pg. 8 of 46, Contract No: AID-EPP-I-00-03-00004

<sup>2</sup> C.4.3, Component Two, pg. 11 of 46, Contract No: AID-EPP-I-00-03-00004

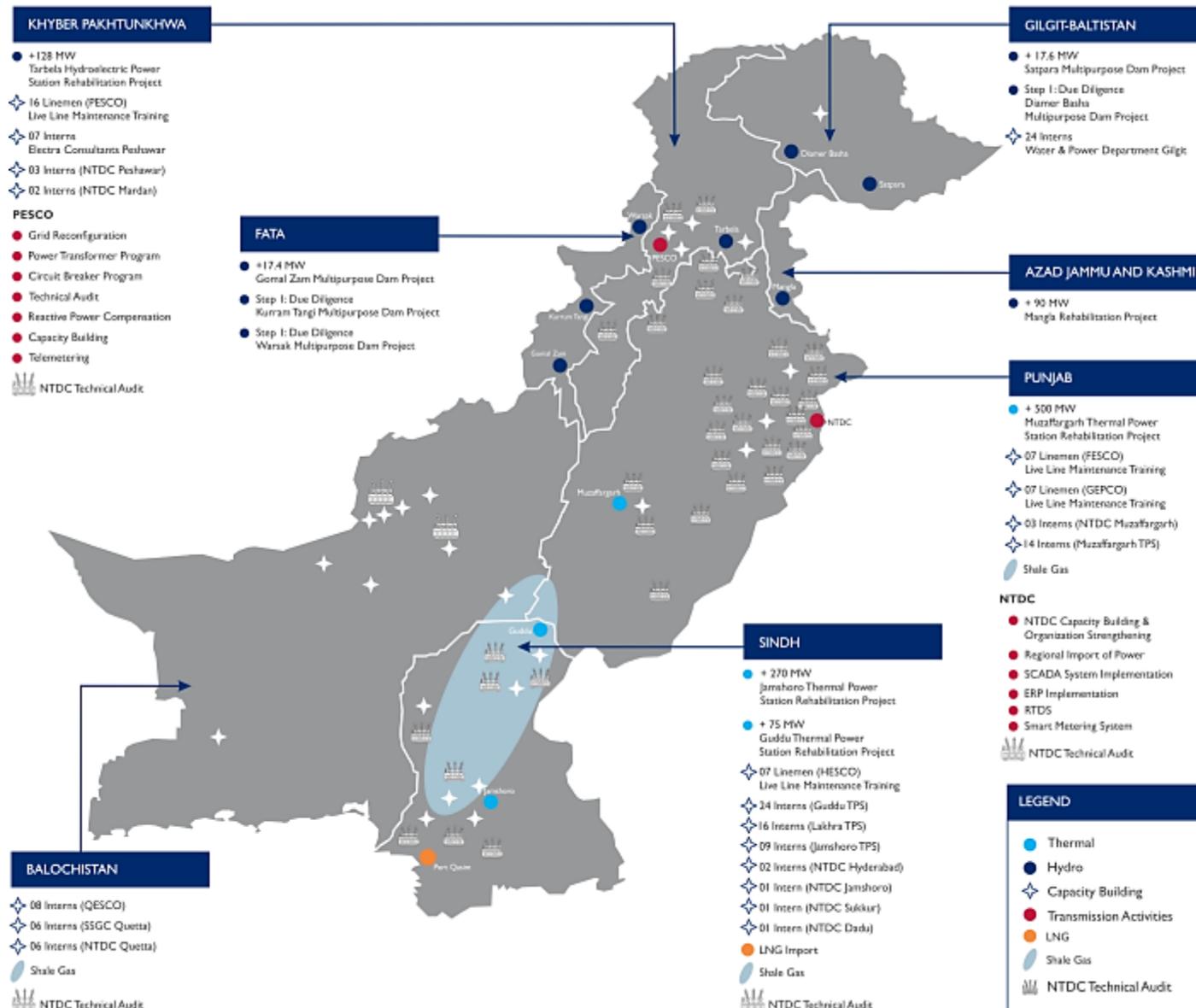
<sup>3</sup> C.4.4, Component Three, pg. 12 of 46, Contract No: AID-EPP-I-00-03-00004

**Component IV – 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>4</sup>. EPP's capacity building program facilitates sustainability by enhancing local capability in critical areas.

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<sup>4</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

EPP provides monitoring and implementation support for seven G2G signature energy projects. These projects include: the rehabilitation of three thermal power plants (Muzaffargarh, Guddu and Jamshoro); two hydropower plants (Tarbela and Mangla); and the construction of two, new multi-purpose dams (Gomal Zam and Satpara). The total USG funding for these projects is U.S. \$291.7 Million (per the revised agreements) that will deliver an estimated gain of 953 MW.

As of April 2014, U.S. \$146.39 million<sup>5</sup> 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 (Million)	Paid (Million)	Completion Date	MW GAINS/BENEFITS	
				Target	Achieved (Apr 30, 2014)
Tarbela	\$16.50	\$13.95	12/31/14	128.0 MW	128.0 MW
Jamshoro	\$19.32	\$15.96	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>\$146.39</b>		<b>953 MW</b>	<b>933 MW</b>

During this reporting period, EPP technical experts visited the project sites regularly, verified deliveries, inspected equipment, and continuously monitored work progress.

## Rehabilitation of Tarbela Hydropower Plant

In April, EPP supervised the installation and commissioning of digital governors at Unit 6 of Tarbela. Digital governors have already been installed and commissioned at units 3, 4, 5, 7 and 9. The digital governors will aid in the smooth operation of the power station. Further shutdowns for the installation of the remaining four digital governors will take place during the “lean flow period” in October of this year.

EPP held a meeting with the plant management and requested that they expeditiously procure the remaining equipment. The remaining replacement and repair work will increase the reliability and sustainability of the power plant, but will not support any megawatt gains.

USAID approved the Environmental Monitoring and Mitigation Plan (EMMP) for Tarbela Rehabilitation Phase-II<sup>6</sup>. EPP issued a subcontract to a firm to conduct a site visit, and prepare an Environmental Monitoring and Audit report. The report is being reviewed by EPP, and will be submitted to USAID, shortly.

<sup>5</sup> EPP certified \$13 million GOP invoice for Mangla Rehabilitation project in April 2014.

<sup>6</sup> USAID consented to GOP’s request of additional funds worth \$25 million for the plant under Tarbela Rehabilitation Project (Phase –II). The 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.

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

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

With U.S. \$45 Million 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. The power generated by the dam is enough to meet the electricity consumption needs of at least **161,000 people**. The project was successfully completed, and was inaugurated by U.S. Ambassador Richard Olson in September 2013.

### 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. U.S. \$26 Million was committed for Satpara and has been disbursed to the GOP.

Successful completion of this effort has resulted in a 17.6 MW gain to the Skardu grid. Additionally, the dam is now 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 this dam is enough to meet the electricity consumption needs of **163,000 people**.

Severe weather conditions created challenges in completing work on Satpara, but EPP achieved all of the desired rehabilitation outcomes ahead of schedule.

### Muzaffargarh Thermal Power Station Rehabilitation Project

EPP, along with its sub-contractor Hagler Bailly Pakistan, visited the site and conducted an environmental audit to ensure that MTPS is adhering to environmentally-compliant procedures and processes. The Environmental Monitoring and Audit report based on this visit is being reviewed by EPP, and will be submitted to USAID, shortly.

The USAID-funded rehabilitation of MTPS has resulted in the restoration of 500 MW of power generation capacity, which exceeds the project objective of 475 MW as stated in the Agreement. The MW gains is sufficient to meet the energy consumption needs of at least **4.6 million people**.

During this reporting period, EPP continued to support MTPS in expeditiously procuring the remaining equipment to minimize delays in rehabilitation work.

With an amendment to the Activity Agreement, the project completion date has been extended to December 31, 2014. As of April 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.

### Jamshoro Thermal Power Station Rehabilitation Project

The USAID-funded rehabilitation of JTSPS has resulted in the restoration of 270 MW of power generation capacity, which exceeds the project objective of 150 MW as stated in the Agreement.

EPP supported Jamshoro in ensuring environmental compliance through a subcontracted firm. An audit was conducted, and an environmental monitoring and audit report was prepared. The report is being reviewed by EPP, and will be submitted to USAID, shortly. With EPP's support, USAID revised the Activity Agreement and extended the project completion date to December 31, 2014. The total amount disbursed to the GOP as of April 2014 is U.S. \$15.96 Million.

### Rehabilitation of Guddu Thermal Power Station

EPP conducted a site visit to monitor the ongoing rehabilitation work, which commenced on March 13, 2014. The rehabilitation work is progressing at a rapid pace on all the three units (GT-7, GT-8 & St-5). This rehabilitation will take three months, and will restore 75 MW – enough to supply electricity to 600,000 people.

As part of its project monitoring and implementation support, EPP provides a daily progress report to USAID, and also supports the Central Power Generation Company Limited<sup>7</sup> (CPGCL) in preparing a weekly progress report.

EPP helped arrange a meeting between USAID, Guddu and General Electric (GE); and discussed issues pertaining to the rehabilitation and implementation schedule for GTPS.

EPP supported Guddu in ensuring environmental compliance in its work processes. An audit was conducted, and an environmental monitoring and audit report was prepared and submitted to USAID and the GENCO.

EPP also supported USAID in issuing tax exemption letters for CPGCL for the clearance of equipment worth U.S. \$250,598. In response to CPGCL's extension request, EPP helped USAID review the Activity Agreement. The project completion date has been extended to December 31, 2014, and the total amount disbursed to the GOP as of April 2014 is U.S. \$17.34 Million.

### **Mangla Dam Rehabilitation Project**

EPP supported WAPDA in preparing the first invoice of U.S. \$13 Million. EPP certified the invoice and submitted it to USAID for approval.

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. With EPP's support, the Project Implementation Letter (PIL) was signed on March 6, 2014.

USAID has committed to upgrade Units 5 and 6, as these two units are in the most need of repair. USAID has also agreed to fund the balance of costs that will improve the efficiency and productive life of all 10 units at Mangla. USAID anticipates a 90 MW gain in power generating capacity through this rehabilitation effort.

### **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 that will reflect the actual costs incurred in producing electricity. This effort will increase the annual revenues of the GENCOs by approximately 9%.

### **Procurement and Calibration of Flow Meters**

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 the NEPRA-compliant heat rate tests commencing.

### **Heat Rate and Dependable Capacity Testing**

Heat rate tests have been completed at Muzaffargarh and Jamshoro. With EPP's support, the revised tariff petition for JTPS has been filed with NEPRA. EPP submitted the Heat Rate Test Report for Muzaffargarh to USAID for review and approval. Once approved by USAID, EPP will forward the report to the GENCO Holding Company Limited (GHCL), and support Muzaffargarh in filing of tariff petition.

### **Capacity Building at GENCOs and WAPDA**

The first batch of O&M training for the GENCOs was completed on April 11, 2014. Under the 2 week training program, 20 participants from the GENCOs were trained on best practices in O&M to improve operations at thermal power plants. The training concluded with a certificate ceremony attended by Acting Energy Office Director, Mr. Tim Moore.

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<sup>7</sup> Established in 1998, CPGCL manages the operations of Guddu Thermal Power Station

# COMPONENT 2: POLICY AND REFORM

## SUPPORT TO THE MINISTRY OF WATER AND POWER

During this reporting period, EPP continued to lend targeted and impact-oriented support to the Ministry of Water and Power (MWP) in implementing the GOP's Power Sector Reform Program in generation, transmission, fuel diversification, policy and finance.

### POWER SIM

In April, EPP's Policy Team conducted stakeholder meetings at the Ministry of Petroleum and Natural Resources (MPNR), Ministry of Planning and Development, and the Federal Flood Commission to introduce the PowerSIM and its usability. The model received mixed feedback from the stakeholders. Some feedback pertains to areas outside the scope of the Power SIM, such as gas allocation between different sectors. Valuable input was given on certain areas that will be used to enhance the model, such as updating the scenarios sheet, improving user-friendliness, and refining the assumptions.

EPP experts initiated the process of uploading open-source data onto the PowerSIM. Enhanced data collection protocols are also being deployed to institutionalize sustainability in updating the model. Along with data uploads, data is also being mapped. These efforts will ensure that users have precise, workable information. The NDA request is still being processed by MWP.

### Power Purchase Agreements (PPAs)

In consulting with MWP, EPP continued to review the JTSP and MTPS Power Purchase Agreements (PPAs). The PPAs will require a Fuel Supply Agreement. EPP is working with the GENCOs to develop a Fuel Supply Agreement for Jamshoro.

## SUPPORT TO MINISTRY OF FINANCE

- **Regulatory Framework of NEPRA:** EPP is assisting the Economic Reforms Unit (ERU) at the Ministry of Finance (MOF) to carry out a diagnostic analysis and review of the regulatory framework of NEPRA in support of the Council of Common Interest's (CCI) decision.
- **Tariff Differential Subsidy:** EPP continued to provide support to MOF to finalize the revised Budget Estimates for FY 2013-14, and Budget Estimates for FY2014-15, for the Tariff Differential Subsidy (TDS)/Tube-Wells Subsidy that was submitted by MWP.
- **Power Sector Circular Debt:** An update on power sector circular debt was prepared in consultation with the Corporate Finance Wing of Ministry of Finance for ultimate submission to the Finance Secretary.
- **Policy Framework:** EPP continued to provide support to the Ministry by preparing comments on the Draft Policy Framework for the Private Sector Transmission Line Projects submitted by MWP. EPP participated in the Loan Negotiation Meeting with UBL held in the office of the Senior Joint Secretary (CF) regarding the financing arrangement of Rs. 20-23 Billion. Professional input was provided during the meeting to restructure the lending instrument.
- **Power Sector Circular Debt:** EPP developed a brief in consultation with MOF on the power sector's circular debt. This will ultimately be submitted by the Ministry to the Senate Committee on Finance and Revenue.

## SUPPORT TO MINISTRY OF PETROLEUM & NATURAL RESOURCES

### LNG Imports

With EPP's direct support, the LNG Service Agreement (LSA) was signed between SSGC and ETPL on April 30, 2014. The signing ceremony took place at SSGC's Head Office in Karachi.

EPP's Environmental Specialist visited Karachi to meet with PQA, SSGC, ETPL and EMS (environmental consultants to ETPL) to address USAID's concerns regarding environmental compliance with local and international laws, and USAID regulations. The site visit took place at the proposed LNG terminals.

Following USAID approval, the process of procuring consultants for LNG procurement (commercial and legal), and for acquiring consulting services for PQA resumed.

A draft delivery order was prepared for assigning HR Wallingford to conduct met-Ocean and Navigation Simulation Studies for PQA. PQA comments and inputs are forthcoming.

Stakeholder nominations and comments on the TORs for the navigation simulation studies have yet to be received from PQA. Additionally, there are issues related to the provision of digital data from PQA for the navigation simulation studies. EPP is addressing this issue in close coordination with the stakeholders.

## Shale Gas

Work under Milestone-2 continued during this reporting period. EPP regularly met with the Advisor and Secretary, MPNR, and DGPC to discuss the program's status.

LMKR's request to send samples of the wells' cores to the U.S. was approved by DGPC. The cores have been sent to NuTech labs in the U.S. Data evaluation of 39 public domain wells by LMKR in consultation with HDIP was also completed. LMKR is in the process of liaising with local E&P companies currently working on collating information related to shale. A request has already been submitted to DGPC to this effect.

The provision of the wells' cores/cuttings data by HDIP was delayed, as HDIP insisted on payments. Accordingly, an amendment in the LMKR contract in the non-labor provisions was approved. After this matter was resolved, the wells' cores/cuttings identified by NuTech were sent to the U.S. for testing and evaluation.

## Upstream Oil and Gas Support

Day-to-day advisory support was provided to DGPC on a number of cases, including licenses and leases, gas pricing issues, supplemental agreements, the unitization issue, and well notices.

A detailed discussion was held with the subcontractor, PTS, on the supplemental agreement for the conversion of policies. EPP received possible options for drafting the supplemental agreements from its local legal consultant. The draft is being evaluated by EPP.

The Additional Secretary, MPNR, requested that EPP evaluate the Shale Gas pilot project proposal by PPL and ENI. After initial review, PTS requested additional information to enable them to evaluate the viability and interim gas pricing proposal of PPL and ENI. A request was made to the Additional Secretary, MPNR, to obtain the necessary information from the two companies. This information has been received and is under review.

EPP finalized cases for the DGPC pertaining to the extension of some licenses and leases. EPP is also evaluating additional cases regarding policy for flared and low BTU gas, and the 18<sup>th</sup> Constitutional Amendment. EPP, in consultation with PTS, prepared the first draft of policy guidelines for flared and low pressure gas, and submitted these to the DGPC for review.

A note on advice of the Law Division regarding clarification on Rule 32 (extension of leases) of the 1986 and 2001 Rules was prepared by EPP, and submitted by the DGPC's office to the Law Division. Based on the advice of the Law Division regarding Rule 32 (extension of leases) of the 1986 and 2001 Rules, EPP drafted a response and shared with this with the DGPC. EPP's suggested clarifications are still under review.

EPP finalized the application for the Tight Gas Policy for the Zarghun field of MPCL, and submitted it along with recommendations to the DGPC.

EPP reviewed and prepared cases for the DGPC regarding the relinquishment of an exploratory block by Petronas, the surrender of off-shore blocks by Niko Resources of Canada, the regularization of OGDCL leases, and a response to the queries of the Additional Secretary, MPNR regarding the UEPL leases.

EPP identified a serious manpower constraint in DGPC, and held meetings with the Secretary and the Advisor, MPNR, to resolve this issue. the manpower constraint remains unresolved, and presents challenges in achieving EPP's objectives under Work Area #4 (Advisory Support on day-to-day issues). In order to resolve this problem, the PTS consultants were asked to work on Work Area #5 (Organizational Setup) on a fast-track basis.

## **SUPPORT TO MINISTRY OF PLANNING AND DEVELOPMENT**

EPP staff seconded to the Ministry of Planning and Development prepared a visual tool for the Secretary to represent the daily supply and demand of electricity, and highlight the shortfall. This Excel-based tool incorporates input from the total supply and demand of power generation in the system from daily reports created by NTDC (National Transmission and Despatch Center), then processes and presents the information in a graphical format.

EPP staff backed-up data from the Member – Energy's official computer, and shared it with the Chief of Party and Deputy Chief of Party as directed by the Member –Energy. EPP also provided routine system and network troubleshooting, and provided general technical assistance to the office of the Member –Energy and the Minister so that they could carry out routine assignments smoothly.

# COMPONENT 3: NEW PROJECTS, PLANNING AND DEVELOPMENT

## Run-of-River (RoR)

Based on information provided by EPP's Component III Team, a Scope of Work was developed by EPP's Environmental Expert, and bids were solicited for a Rapid Environmental Analysis of two run-of-river (ROR) projects – Alai Khwar and Duber Khwar. These two power projects have been selected by USAID for possible funding.

Component III experts then participated in the Technical Evaluation of the two bids received, and M/s Hagler Bailly was subsequently selected.

The Component III Team continued to lend advice and information in response to queries from USAID on the two hydro power projects.

## Mangla

As a result of the contacts established and the credible work performed at Mangla over the past two years, EPP was asked to assist a team from USAID in visiting the plant as part of an ongoing reassessment of WAPDA's institutional systems and capacity to implement USAID-funded projects. WAPDA's capacity was evaluated in 2010 as a pre-requisite to funding under the FARAs for the 6 signature projects.

EPP experts accompanied the USAID team on its visit to Mangla, and assisted them in their assessment work. A draft report on the findings is expected to be shared with WAPDA in May 2014.

## Kurram Tangi/Kaitu Weir project

EPP conducted Step I Due Diligence on the Kurram Tangi Project in 2011, and USAID approved funding as highlighted in the Congressional Notification in 2012. Subsequently, responsibility for furthering the project was handed over to FATA.

Based on technical concerns identified by EPP, USAID decided to involve EPP as their lead advisor on the project.

During this reporting period, EPP initiated work in support of USAID's plans for the Kaitu Weir Project, which is part of the larger Kurram Tangi multipurpose dam and hydropower project. A meeting was held with USAID to determine actions, activities, decisions and progress on the project over past year. Additional meetings with WAPDA will take place next month.

# COMPONENT 4: NEW ACTIVITIES

## TRANSMISSION

### PESCO

EPP continued to focus on strengthening the power transmission network, and on delivering targeted capacity building for power sector entities. The majority of these efforts were focused on the Peshawar Electric Supply Company (PESCO). To date, **240.1 MW of transmission throughput capacity have been added to PESCO's network as a result of EPP's assistance.**

### Technical Audits

To date, 82 of 85 (approximately 94%) PESCO grid stations have been audited. The technical audits highlight problems and bottlenecks, and prioritize proposed corrective measures.

### Power Transformer Program

- **Power Transformers:**  
A 20/26 MV Power Transformer, after repairs, was transported to the Gadoon Amazai 132 kV GS. Pre-commissioning tests will be performed on the transformer in the coming month. This 20/26 MVA PTF will augment an existing 10/13 MVA PTF. The augmentation, once completed, will add an additional 13 MVA transformation capacity, and is likely to benefit 166,374 people.
- **Oil Sampling:**  
The results of oil sample testing of 157 out of 205 power transformers have been received. The results indicate the steps necessary for safeguarding and enhancing the life of these power transformers.

### Circuit Breaker

Two 145 kV SF6 Circuit Breakers (CBs) were installed this reporting period at Nowshera Industrial 132 kV GS. The CBs protect electrical circuits from damage under fault conditions. The provision of CBs has ensured reliability and made PESCO's network safer from an operations point of view.

### Telemetry

The damaged telemeters at Haripur 132 kV GS were replaced and tested on April 15, 2014. The meters help measure energy flows, and report these values to the control center at PESCO. At the control center, these values are analyzed for managing discrete load demands in a timely manner. The data received, through meters, is stored in a database which can further be used for load forecasting, generation planning, and load flow studies.

### Transmission Line

EPP continued work on developing a Scope of Work (SOW) for the repair of damaged towers, and work is expected to commence in the Second Quarter of FY 2014.

### NTDC/NPCC

On April 19, 2014 a meeting between AEAI leadership and the NTDC Board of Directors (BOD) took place in Islamabad. The NTDC BOD received an update on NTDC-related activities supported by AEAI. The activities discussed included the technical audit of NTDC grid stations, and the provision of an Enterprise Resource Planning (ERP) System.

### Technical audit:

19 of 41 (46%) NTDC GS audits have been completed. Three (03) 220 kV and one (01) 500 kV NTDC GSs, including the University Islamabad 220 kV, ISPR (Sangjani) 220 kV, Ludewala Sargodha 220 kV, and Gatti 500 kV were audited this month.

# CROSS-CUTTING ACTIVITIES

EPP's Cross-Cutting Activities include capacity building, gender and M&E support.

Table 4: Cross-Cutting Activities

Progress/ Activities	Impacts	Issues/Constraints	Resolving Issues
<p><b>International LNG Business Management Certificate Program</b></p> <p>The program was cancelled due to late nominations and insufficient time to prepare J-I visas for June 2014 travel.</p>	<p>The certificate program was intended for MPNR, ISGS, PQA, and SSGC to build LNG business skills. The program will be redeveloped to reach more stakeholders.</p>	<p>The capabilities of the stakeholder organizations related to LNG do not match the required skills to successfully run the operations and supply chain of incoming LNG.</p>	<p>EPP has experienced difficulty in receiving NOC's for nominees and will engage directly with stakeholders to resolve this.</p>
<p><b>Live Line Training</b></p> <p>EPP is waiting for a country exemption contract modification for the contractor to deliver the assessment.</p>	<p>The LLT assessment will review current practices and recommend measures to improve the training. The LLT program will commence after the assessment findings are implemented.</p>	<p>None</p>	<p>N/A</p>
<p><b>O &amp; M Training for GENCOs and Hydels</b></p> <p>The first batch of training was completed on April 11, 2014. 20 GENCO staff were trained (5, Jamshoro, 6 Guddu, 6 Muzaffargarh, 2 GTPS Kotri, and 1 GM Lahore).</p> <p>EPP is waiting for a country code contract modification for the hydel training to commence.</p>	<p>Through O&amp;M training, the GENCOs will be able to identify deficiencies in their current O&amp;M practices and increase efficiency and delivery of MWs.</p>	<p>None</p>	<p>N/A</p>
<p><b>M &amp; E Plan</b></p> <p>EPP submitted information into PakInfo for the FY2014 Q2 data call. Staff verified data with site visits to PESCO and GEPCO</p>	<p>Updated calculations of beneficiaries, GWh, and MWs required updates to PakInfo from project start.</p>	<p>Number of beneficiaries was significantly reduced, and USAID is still determining how to reflect this calculation in PakInfo</p>	<p>Awaiting this quarter's advisement from USAID's M&amp;E Office</p>
<p><b>Gender Assessment</b></p> <p>EPP's Senior Gender Advisor collected data and began drafting the gender assessment.</p>	<p>EPP will work with the stakeholders to conduct a baseline gender equity needs assessment. Through the assessment, EPP will be able to determine how to better integrate gender into existing activities.</p>	<p>None</p>	<p>N/A</p>
<p><b>NTDC Capacity Building</b></p> <p>EPP met with Design Department, MD, HR, etc. in Lahore to develop a capacity building plan to support NTDC.</p>	<p>Through exchange visits, rehabilitation of facilities, and on-the-job training activities, EPP will support capacity building to complement technical and installation work.</p>		

# COMMUNICATIONS

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

The Communications Team organized the certificate distribution ceremony for the recently-concluded Thermal O&M Training Program in Islamabad.

To strengthen communications and outreach efforts, the Communications Team began collecting data that will help develop success stories and one-pagers.

EPP provided support to USAID in filming a television commercial at the Jamshoro Thermal Power Station as part of the Roshan Pakistan Campaign.

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

- EDF/EMMP – LNG Activities
- Environmental Monitoring and Audit Report – THPS
- Environmental Monitoring and Audit Report – MTPS
- Environmental Monitoring and Audit Report – JTPS

**Confidential information redacted**

**Confidential information redacted**

## Work Continued:

- **Incoming Panel, Power Cables and Termination Kits for 3 new Power Transformers:** FAT for power cables and three incoming panels for new power transformers were completed for three PESCO grid stations; and delivery of two incoming panels in process.
- **31.5/40MVA New Power Transformer:** Second power transformer was commissioned at Hattar Grid Station; and a third power transformer was pre-commissioned at D.I. Khan, KPK.
- **Installation of Cooling Fans & MCBs in PESCO:** Power Shine Technologies completed installation of cooling fans and MCBs at concerned grid stations.
- **Simulation Study Service:** Request for consent was sent to USAID for approval (U.S. \$208,200).
- **O&M Hydro Power Plant Training:** Request for Geographic Code waiver sent to USAID for approval (U.S. \$136,000).
- **Refurbishment/repair of live line logistic trailers:** Factory site inspections were conducted. Final Technical review is in process for the refurbishment and repair of live line logistic trailers (U.S. \$45,000).
- **HV&LV Bushings for 132/66kV-37.5 MVA Transformer:** Request for Proposals (RFP) was sent to vendors, and the closing date was extended to April 7, 2014 for the supply of HV/LV Bushings for 132/66kV-37.5 MVA Transformer (U.S. \$20,000).
- **Port Qasim Authority Consultancy Service:** Request for Proposals (RFP) was prepared and uploaded onto EPP's website. Full and open advertisement will be published in nationwide newspapers (U.S. \$2,500,000).
- **Hilux Pickups 4x4 M/T for Transmission:** Bids opened and technical review in process (U.S. \$270,000).
- **Telescopic Bucket Truck:** Request for Proposals (RFP) is in process for a Telescopic Bucket Truck, with a closing date of May 5, 2014 (U.S. \$300,000).
- **Tool & Equipment for PESCO's T&G Department:** Bids opened and technical review is in process for tools and equipment for PESCO's T&G Department (U.S. \$200,000).
- **Repair of Damaged Towers:** Request for Proposals (RFP) is in process for the repair of damaged towers with a closing date of May 5, 2014 (PKR 25.5 Million).
- **Study for Enhancement of Transmission Capacity of NTDC's 500kV Transmission System:** Request for Proposals (RFP) was prepared with a closing date of May 16, 2014 (U.S. \$50,000).
- **Transportation of PTF from PTESU to Chakdra:** Request for Proposals (RFP) was prepared with a closing date of May 2, 2014 (U.S. \$7,000).
- **Replacement of 20/26MVA PTF at Chakdra GS:** Request for Proposals (RFP) was prepared with a closing date of May 8, 2014 (U.S. \$15,000).
- **Augmentation of 10/13 MVA PTF at Khawazakhela GS:** Request for Proposals (RFP) was prepared with a closing date of May 8, 2014 (U.S. \$22,000).
- **GST Exemption from EAD:** General Sales Tax exemption is under review by EAD for the 40 MVA Power Transformer and Current Transformer.

# LIST OF KEY MEETINGS

Table 6: List of Key Meetings Conducted in April

Meeting with	Date	Location	Purpose	Outcome/Result
PQA, ETPL, EMS, EPP	April 1	Karachi	To address USAID concerns for environmental compliance.	Preparation of draft EDF-EMMP document.
SSGC, EPP	April 2	Karachi	To address USAID concerns for environmental compliance.	Preparation of draft EDF-EMMP document.
UNDP – Muhammad Ayub	April 8	Islamabad	As part of the Gender Assessment, EPP gathered data from other implementing partners.	Successfully established relationship with relevant gender integration staff and collaborating on future outputs in the energy sector.
DGPC, PTS, EPP	April 9	Islamabad	To review the draft Supplemental Agreement for conversion to 2007, 2009, and 2012 Policies.	PTS was asked to review the issues as highlighted by DGPC. The matter is under consideration and will be discussed again with DGPC in the 1 <sup>st</sup> week of May.
Tim Moore, Margaret Harritt and Fernando Partida	April 10	Islamabad	EPP explained the assessment structure	Established contact with the Gender Office for all future work plans and ideas related to energy sector integration.
PESCO live line trainees	April 10	Peshawar	Conducted follow-up assessment for live line maintenance trainees.	Prepared report on trainee responses and feedback.
USAID M&E – Margaret Harritt	April 11	Islamabad	Discuss PakInfo, M&E Plan, updates to PIRs and DQA	M&E plan to be updated in May, DQA from MSI in May, and PakInfo quarterly updated in April.
World Bank – Gul Najam Jamy – South Asia Human Development Unit	April 14	Islamabad	As part of the Gender Assessment, EPP gathered data from other implementing partners.	Successfully established relationship with relevant gender integration staff and collaborating on future outputs in the energy sector.
Asian Development Bank – Uzma Altaf – National Implementation Consultant for Pakistan Resident Mission	April 14	Islamabad	As part of the Gender Assessment, EPP gathered data from other implementing partners.	Successfully established relationship with relevant gender integration staff and collaborating on future outputs in the energy sector.

Meeting with	Date	Location	Purpose	Outcome/Result
OGRA	April 15	Islamabad	Advise OGRA on USAID LNG and Shale Gas support regarding capacity building	Agreed to review capacity building needs related to USAID activities that will require OGRA participation.
Center of Excellence in Gender Studies – Dr. Farzana Bari, Director	April 15	Islamabad	As part of the Gender Assessment, EPP gathered data from gender experts in Pakistan.	Successfully established relationship with relevant gender integration staff and collaborating on future outputs in the energy sector.
OGDCL-Executive Director HR and Admin	April 15	Islamabad	Discuss gender baseline data and EPP assessment terms.	EPP will continue to gather data and draft gender integration assessment.
USAID Power Distribution Program – DCOP Art Sedestrom, Gender Strategy Team Lead Qurat Ibrahim, and Sarah Moin Gender Coordination Associate	April 16	Islamabad	As part of the Gender Assessment, EPP gathered data from other implementing partners.	Successfully established relationship with relevant gender integration staff and collaborating on future outputs in the energy sector.
Establishment Division, Department of Tourism	April 16	Islamabad	As part of the Gender Assessment, EPP gathered data from labor groups.	The Establishment Division follows the SOW sent by relevant agencies but was helpful in giving suggestions to increase female employment in energy sector.
Asia Foundation- Nadia Tariq Ali, Manager of GBV and Gender Equity Program	April 16	Islamabad	As part of the Gender Assessment, EPP gathered data from gender experts in Pakistan.	Successfully established relationship with relevant gender integration staff and collaborating on future outputs in the energy sector.
World Bank- Senior Energy and PPP Specialist Anjum Ahmad and Salma Omer, Senior Social Development Specialist	April 16	Islamabad	As part of the Gender Assessment, EPP gathered data from gender experts in Pakistan.	Successfully established relationship with relevant gender integration staff and collaborating on future outputs in the energy sector.
Alternative Energy Development Board	April 17	Islamabad	Discuss gender baseline data and EPP assessment terms.	EPP will continue to gather data and draft gender integration assessment.
GIZ Gender Advisor – Sumaira Akram	April 17	Islamabad	As part of the Gender Assessment, EPP gathered data from gender experts in Pakistan.	Successfully established relationship with relevant gender integration staff and collaborating on future outputs in the energy sector.
National Commission on the Status of Women	April 17	Islamabad	Discuss gender baseline data and EPP assessment terms.	EPP will continue to gather data and draft gender integration assessment.

Meeting with	Date	Location	Purpose	Outcome/Result
WAPDA Member Power, GM Hydel	April 18	Lahore	To discuss the progress of Mangla Rehab project and issues related to remaining procurements at Tarbela.	<ol style="list-style-type: none"> <li>1. Mangla's first invoice of \$13 million processed.</li> <li>2. Tarbela pump to arrive in June 2014 to expedite disbursement of \$400,000.</li> </ol>
NTDC Design Department	April 20	Lahore	Address rehabilitation of department and capacity building needs	Prepared draft SOW that will be submitted to USAID and NTDC in May
Mr. Qazi M.Saleem Siddiqui, DG, Directorate General of Gas	April 21	DG GAS Office, Islamabad	Initial briefing on Power SIM	<ol style="list-style-type: none"> <li>1. Training of MPNR/Gas Directorate Staff on using Power SIM for Gas Sector Applications</li> <li>2. Number of trainees and schedule of training to be discussed</li> <li>3. Engagement of other Gas &amp; Hydrocarbons Sector stakeholders</li> </ol>
NTDC CPPA	April 21	Lahore	Capacity Building Plan for CPPA discussed and gathered organization buy-in	EPP will prepare questionnaire for CPPA regarding capacity building needs.
MWP Additional Secretary and Joint Secretary	April 21	Islamabad	Discuss gender baseline data and EPP assessment terms.	EPP will continue to gather data and draft gender integration assessment.
USAID Gender Equity Program	April 21	Islamabad	As part of the Gender Assessment, EPP gathered data from other implementing partners.	Successfully established relationship with relevant gender integration staff and collaborating on future outputs in the energy sector.
Saeed Anwar and Fernando Partida	April 21	Islamabad	EPP discussed the Gender Assessment and strategy with COR and the Gender Office.	EPP will continue to gather data and draft gender integration assessment.
USAID Project Manager for GENCOs	April 22	EPP Office	To discuss the status of GENCOs	<ol style="list-style-type: none"> <li>1. Rehab work started at Guddu on Mar 13.</li> <li>2. Briefed the progress of GENCOs</li> </ol>
WAPDA House – Member Power	April 22	Lahore	Capacity Building and Gender meeting for assessment to review WAPDA practices	WAPDA delivered gender disaggregated data and bought into the gender process that EPP is facilitating.
Mr. Arshad Malik (Chief Energy, Planning Commission Energy Wing) and his team	April 23	Islamabad	Initial briefing on Power SIM	<ol style="list-style-type: none"> <li>1. Training of staff on using Power SIM for analysis/papers</li> <li>2. Application of Power SIM on 5-year Plan</li> </ol>

Meeting with	Date	Location	Purpose	Outcome/Result
Minister MPNR, MPNR (Secretary, Addnl. Secretary and other officials), PQA (Chairman and other officials via Videocon), SSGC (MD and DMDs), ISGS (MD and other officials), ETPL (CEO) and EPP (COP and Dir. Policy).	April 23	Islamabad	Site confirmation for fast track LNG project	<ol style="list-style-type: none"> <li>1. The Ministry did not endorse QED recommendations for site confirmation</li> <li>2. Information and findings related to various studies and response to concerns by other terminal operators.</li> <li>3. Letter received on April 29 requesting PQA to expedite the issuance of a NOC for the LNG terminal.</li> </ol>
University of Engineering and Technology –Lahore	April 23	Lahore	Discuss gender baseline data and EPP assessment terms.	EPP will continue to gather data and draft gender integration assessment.
SNGPL	April 23	Lahore	Discuss gender baseline data and EPP assessment terms.	EPP will continue to gather data and draft gender integration assessment.
D.G.(ERU)	April 24	MOF, Islamabad	Discussions regarding diagnostic analysis of NEPRA in pursuance of CCI decision.	1 <sup>st</sup> draft of the Report was developed and shared with all concerned for views/comments. The report mainly focuses on administrative/ HR development issues relating to NEPRA
GEPCO live line trainees	April 24	Gujranwala	Conducted follow-up assessment for live line maintenance trainees.	Prepared report on trainee responses and feedback.
Mr. Saif-Ullah , Engineering Adviser (Power), Head of Power Engineering Cell, Federal Flood Commission	April 25	Federal Flood Commission, Islamabad	To discuss the Tariff Differential Subsidy calculation mechanism for the DISCOs to incorporate into the Power SIM	Obtained the required information about the subsidy claims.
MPNR	April 25	Islamabad	Discuss gender baseline data and EPP assessment terms.	EPP will continue to gather data and draft gender integration assessment.
DGPC, LMKR, EPP	April 28	Islamabad	Technical visit of DGPC team to NuTech labs/facilities in USA, and coordination of LMKR with E&P companies on Shale Gas project.	<ol style="list-style-type: none"> <li>1. The visit plan is being reviewed by EPP in coordination with Training/Procurement departments.</li> <li>2. LMKR is in a process to liaise with local E&amp;P companies through DGPC, currently working on collating information pertaining to shale plays.</li> </ol>
DG Petroleum Concessions	April 28	Islamabad	Revised shale gas exchange as a business trip, not capacity building program	Capacity building will support visa process for B-I

**ENERGY POLICY PROGRAM**

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