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PAKISTAN

ENERGY POLICY PROGRAM

QUARTERLY PROGRESS REPORT

JAN-MAR 2014



April 2014

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ENERGY POLICY PROGRAM

QUARTERLY PROGRESS REPORT: JAN-MAR 2014

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

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

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Cover photo: USAID Mission Director, Gregory Gottlieb and Chairman WAPDA, Syed Raghieb Abbas Shah singing the PIL for the Mangla Dam Rehabilitation Project

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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

QUARTERLY HIGHLIGHTS

This Energy Policy Program (EPP) Quarterly Progress Report covers the period from January 1 – March 31, 2014. Highlights and achievements during this reporting period appear in the following summary table:

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

Item	Program Activity	Comments
Impacts:	Component 1	<ul style="list-style-type: none"> G2G: Additional 20MW of power generation capacity restored at MTPS. A total of 933MW have been added/restored through the G2G projects. G2G: Digital Governors commissioned at Units 3&4 of Tarbela Hydroelectric Power Plant G2G: PIL for Mangla Dam Rehabilitation Project signed on March 6, 2014. G2G: JTPS received a tax exemption worth U.S. \$971,970.00 G2G: Successful pre-outage performance tests were conducted at GTPS G2G: Rehabilitation work commenced at GTPS G2G: GTPS received a tax exemption worth U.S. \$4.55 million
Impacts:	Component 2:	<ul style="list-style-type: none"> USAID Energy Office Director Michael Curtis participated in the Oil & Gas Summit 2014 and lent a presentation on the Shale Gas Program Introductory meeting on Power SIM held with the Advisor and Secretary of MPNR EPP commenced its activities for upstream oil and gas support 2 MWP Section Officers received training on the Power SIM LNG Import Program approved by ECC 1 DGPC personnel received on the job training in Shale Gas software and best practices.
Impacts:	Component 3	<ul style="list-style-type: none"> EPP experts provided support to USAID in conducting an audit of WAPDA EPP lent support to USAID in preparing for the REA of Alai Khwar and Dubair Khwar
Impacts:	Component 4	<ul style="list-style-type: none"> PESCO Technical Audits: 5 additional audits were completed PESCO: Successful installation of cooling fans at Grid Stations provided 192.1MW of evacuation capacity PESCO: FAT test of three 40MVA transformers for Jamrud, D.I.Khan and Hattar grid station were cleared for installation. PESCO: Transformers energized at Jamrud and Hattar adding 28MVA of transformation capacity to PESCO's grid PESCO: One 145kV circuit breaker installed NTDC Technical Audits: 15 additional audits were completed
Impacts:	Cross – Cutting	<ul style="list-style-type: none"> EPP assessed the capacity building needs of PQA and SSGCL
Impacts:	Personnel	<ul style="list-style-type: none"> EPP's Senior Advisor – Oil & Gas promoted to the Key Position of Director – Policy Reform
Issues	Component 1: Component 2:	<ul style="list-style-type: none"> WAPDA's bank account to be opened for disbursement of funds for Mangla Rehabilitation. Construction Supervision for LNG import terminal NDA for updating/calibrating of Power SIM
Constraints	Personnel	<ul style="list-style-type: none"> Additional long-term staff required for LNG-related activities and Policy Reform efforts. Short-term staff required for capacity building, gender, and Monitoring and Evaluation efforts.

Item	Program Activity	Comments
	Work plan Contract	<ul style="list-style-type: none"> • EPP's work plan must be updated to accurately reflect current and future approved activities • Contract modification required to address the Model DISCO activity
Proposed (new) Activities	LNG Support Shale Gas Capacity Building	<ul style="list-style-type: none"> • LNG Capacity Building for SSGC and PQA: Additional legal support is required for the "Fast Track" LNG Import Project. • Completion of Milestone II • TNA required for LNG and NTDC-related efforts • O&M training for thermal and hydel plants will move forward

PROGRESS IN NUMBERS

Indicator		LOP Target		FY 2011 Target	FY 2012 Achieved	FY 2013 Achieved	Qr.2 - FY 2014 Achieved	FY 2015 Target
DO Ia Gigawatt-Hours (GW·h) of energy sold								
I.1a. Number of beneficiaries with improved energy services due to United States Government assistance (4.4.1-31)	Gen	13,112,306	7,993,106	3,362,106	703,912	4,390,188	185,240	0
	Trans		5,119,200	0	0	614,304	2,458,496	2,559,600
I.1b. Gigawatt-hours (GW h) of energy availability	Gen	TBD	TBD	TBD	TBD	TBD	TBD	TBD
	Trans		TBD	TBD	TBD	TBD	TBD	TBD
I.1c. Power (megawatts) available to meet power sector demand as a result of United States Government assistance	Gen	1,263 MW	863 MW	363 MW	76 MW	474 MW	20 MW	0
	Trans		400 MW	0	0	48 MW	192.1MW	200 MW
I.1.1a.(MW of electrical power added or saved as a result of United States Government supported construction, rehabilitation, and other generation and transmission improvements	Gen	1,263 MW	863 MW	363 MW	76 MW	474 MW	20 MW	0
	Trans		400 MW	0	0	48 MW	192.1MW	200 MW
I.1.1b. Efficiency of thermal power plants (British thermal units of input heat energy per kilowatt-hour of electrical output energy (Btu/kW h))			GENCO III = 10,161 BTU/kwh GENCO II = 9,641 BTU/kwh GENCO I = 12,162 BTU/kwh	0	0	GENCO I = 11,063.07 BTU/kwh	GENCO III = 10,567.20 BTU/kwh	0
I.1.1c. Number of United States Government supported installations and operations and maintenance improvements of generation plants and transmission networks	Gen	40	24	0	6	10	3	0
	Trans		16	0	0	2	51	0
I.1.1d. Number of transmission bottlenecks resolved			13	0	0	2	4	0
I.1.4a. Public and private funds leveraged by the United States Government for energy infrastructure projects (alternative F indicator 4.4.1-32)			\$48 million	0	0	\$33 million	0	0
4.4-8 Number of beneficiaries receiving improved infrastructure services due to USG assistance	Gen	13,112,306	7,993,106	3,362,106	703,912	4,390,188	185,240	0
	Trans		5,119,200	0	0	614,304	2,458,496	2,559,600

PLANNED ACTIVITIES

The EPP will be focus on the following efforts from April 1 – June 30, 2014.

Table 2: Planned Activities

Component I

- Complete of G2G-related activities
- Obtain the project implementation letter for Mangla Dam and commence work
- Complete the heat rate testing for the remaining thermal power plants

Component II

- Continue implementation support of the August 2013 National Power Policy
- Roll out the Power System Integrated Model (PSIM) 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

- Perform Step II Due Diligence for transmission-related activities as a precursor to possible transmission G2G funding

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), Real Time Digital Simulator (RTDC), and design center development 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 to all program components
- Further plan impact-oriented capacity building interventions that promote sustainability

Communications

- Communications will host visible and impact-oriented events that highlight key program deliverables; and provide outreach assistance across all program components

PROGRAM OVERVIEW

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

The program is currently in its *Integration Phase*. While there is a continued and ongoing focus on due diligence and successfully implementing the G2G effort, EPP has begun integrating work on technical upgrades, policy reform implementation, and transmission-related activities. All of these efforts are geared towards helping Pakistan expand its indigenous production capacity, eliminate the need for subsidies and mitigate pressures contributing to the country's current energy crisis, including its "circular debt." At the conclusion of this important program, EPP will have contributed substantially to both the immediate energy shortages, and 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.¹ 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.² In achieving the objectives of this component, EPP supports generation and transmission-related studies and policy reform activities assigned by USAID with the support of the GOP.

¹ C.4.2, Component One, pg. 8 of 46, Contract No: AID-EPP-I-00-03-00004

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

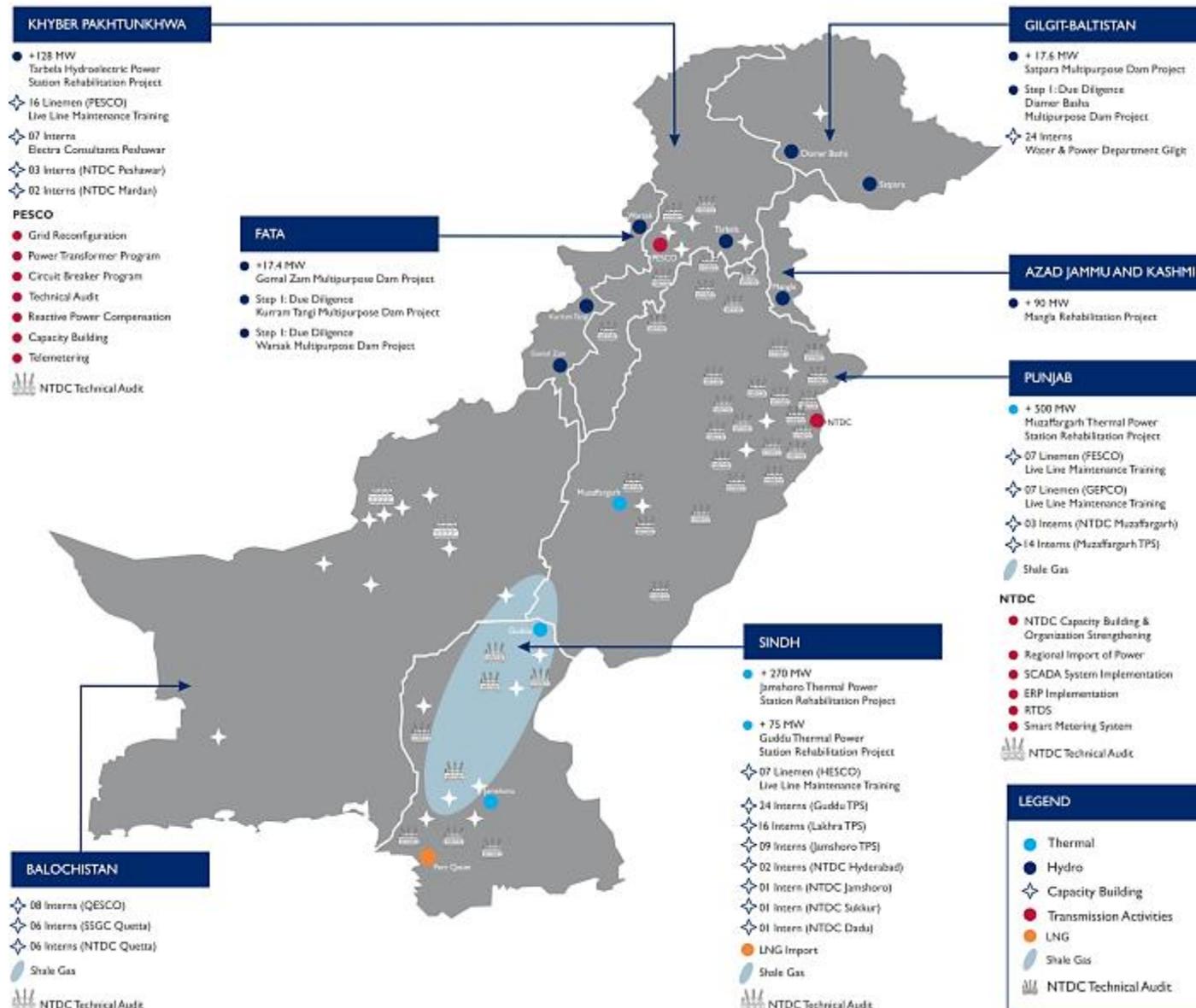
Component III – New Projects, Planning and Development: Based on frequently changing priorities and schedules of USAID and USG entities, EPP undertakes due diligence of projects and activities that are candidates for USG support.³ Specifically, EPP conducts and prepares due diligence reports on new projects under consideration for USG support in order to provide detailed information, reduce USG risk, and set a basis for creating Project Implementation Agreements for the selected projects.

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

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

⁴ 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 the six G2G signature energy projects identified in the Task Order Award. These projects include the rehabilitation of three thermal power plants (Muzaffargarh, Guddu and Jamshoro), one hydropower plant (Tarbela Dam); and the construction of two, new multi-purpose dams (Gomal Zam and Satpara). The total USG funding for these projects is \$141.7 million (per revised agreements) that will deliver an estimated 863 MW in gains.

As of March 2014, \$133.39 million – or 94% of total funding – 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 (\$USD Million)	Paid (\$USD Million)	Completion Date	MW GAINS/BENEFITS	
				Target	Achieved (Mar 31, 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
Total	\$141.71	\$133.39		863 MW	933 MW

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

Rehabilitation of Tarbela Hydropower Plant

USAID consented to the GOP’s request of U.S. \$25 Million in additional funds for the plant under the Tarbela Rehabilitation Project Phase -II. This funding will aid in the replacement of additional equipment that will add to the plant’s reliability and sustainability; and will enhance the life of Tarbela by at least 15-20 years. This replacement is expected to result in an additional 20 MW, approximately 60 GWh of energy per year, and oil savings of U.S. \$12 Million per year. EPP supported WAPDA in preparing the schedule for the Phase-II procurements, and drafted an Activity Agreement for the project that was submitted to USAID.

During this reporting period, EPP supervised the installation and commissioning of digital governors at Units 3 and 4 of Tarbela, while WAPDA commenced work on the installation of a digital governor at Unit 5. The digital governors will aid in the smooth operation of the power station.

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

EPP conducted a site visit and prepared its Environmental Monitoring and Mitigation Plan (EMMP), and submitted it to USAID for review. EPP is awaiting the approval of the USAID Environmental Officer.

EPP supported WAPDA in preparing the Quarterly Accrual Reports, and submitted these to USAID for review. Of the U.S. \$16.5 Million committed for Tarbela, the total disbursement as of March 2014 was 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 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 conducted a site visit to inspect the partial consignment of air pre-heater elements, and verified that it complies with the technical specifications as mentioned in the PIL. EPP certified claims of U.S. \$1,309,950 against PIL Items 13, 14, 15, 25, 34, and forwarded to USAID/ENR for disbursement.

During this reporting period, 20 MW of power generation capacity was restored by replacing air preheater elements at Units 5 and 6, and use of fuel oil additives at MTPS. With the 20MW gain, the rehabilitation work to-date has resulted in the addition of 500 MW of generation capacity, which exceeds the target of 475 MW set in the Agreement. The 500 MW added to the national grid is sufficient to supply electricity to **661,500 households**.

Major equipment has been installed and rehabilitated at MTPS, and procurement of the remaining equipment required is in process.

EPP supported Muzaffargarh in preparing the Quarterly Accrual Report, and submitted this to USAID for review. 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 March 2014, out of an obligated amount of U.S. \$15.77 Million, the total amount disbursed to the GOP stands at U.S. \$15.14 Million for MTPS.

Jamshoro Thermal Power Station Rehabilitation Project

The USAID-funded rehabilitation of JTPS 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. During this reporting period, EPP continued to lend procurement support to JTPS in obtaining the remaining equipment to minimize delays in rehabilitation efforts. EPP provided assistance to JTPS in receiving tax exemption letters from USAID for equipment worth U.S. \$971,970.

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 January 2014 was U.S. \$15.96 Million.

Rehabilitation of Guddu Thermal Power Station

Rehabilitation work at the Guddu Thermal Power Station began on March 13, 2014. The rehabilitation will take three months, and will restore 75 MW. This is enough power to supply electricity to **600,000 people**. EPP engineers visited the site to monitor the ongoing rehabilitation work.

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 Limited⁵ (CPGCL) in preparing a weekly progress report.



Dismantling of units at GTPS

In January and February, EPP visited the plant and conducted an inspection of equipment delivered by General Electric (GE). The inspection was carried out in coordination with representatives from GE and CPGCL. EPP also witnessed the pre-outage performance tests at three units of GTPS (ST-5, GT-7 and GT-8) prior to the commencement of rehabilitation work.

EPP supported USAID in issuing tax exemption letters for CPGCL to clear equipment worth U.S. \$4.55 million. EPP assisted Guddu in preparing the Quarterly Accrual Report that was

submitted to USAID.

Finally, EPP supported USAID's review of the Activity Agreement that extended the project completion date to December 31, 2014. The total amount disbursed to the GOP as of March 2014 was U.S. \$17.34 Million.

Mangla Dam Rehabilitation Project

EPP supported USAID in finalizing the Project Implementation Letter (PIL) for Mangla. The PIL was signed on March 6, 2014 by the USAID Mission Director and Chairman WAPDA. After the PIL was signed, EPP assisted WAPDA in opening a bank account, and conducted several meetings with the Ministry of Water and Power and the Ministry of Finance to expedite this process. With the account open, approximately U.S. \$13 Million will be disbursed to the GOP. USAID is providing U.S.

⁵ Established in 1998, CPGCL manages the operations of Guddu Thermal Power Station

\$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 has committed to upgrade Units 5 and 6, as these two units are the most in 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 which 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

During this reporting period, SGS⁶ continued work on the calibration of gas flow meters at Guddu TPS. Fifty percent (50%) of the meters at Guddu have been calibrated. EPP provided Guddu the orifice plates which are necessary to complete the calibration of the remaining meters.

Heat Rate and Dependable Capacity Testing

Heat rate tests have been completed at Muzaffargarh and Jamshoro. The revised tariff petition for JTPS has been filed with NEPRA. EPP is reviewing the draft Heat Rate test report prepared for Muzaffargarh.

Capacity Building at GENCOs and WAPDA

In March, training of the first batch commenced for 20 participants from the GENCOs. The training session focused on best practices in Operations and Maintenance (O&M) to improve operations at thermal power plants. EPP estimates that this training will ultimately result in improved financial operations at the three GENCOs and improved management procedures.



Thermal O&M Training

⁶ EPP has contracted the services of SGS for calibration of flow meters at the three GENCOs located at Jamshoro, Muzaffargarh and Guddu

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

The EPP Team commenced work with MWP to finalize a nondisclosure agreement (NDA) that will allow for the use of the most current data. This data will improve the usability of the model. Additionally, the model is being augmented to create additional scenarios at the request of stakeholders that EPP has engaged.

At the request of the Secretary, MWP, EPP presented the Power SIM to key personnel at NTDC and CPPA. EPP delivered a brief on the model and its potential use and benefits. An introductory meeting on the model was held with the Secretary and Advisor, MPNR, as well. The Ministry expressed appreciation for the model, and has requested a more detailed orientation.

In February, two Section Officers were trained on Power SIM.

Power Purchase Agreements (PPAs)

In consultation with MWP, EPP continued to review the JTPS and MTPS Power Purchase Agreements (PPAs). MWP requested USAID's support in the review of the agreements between the GENCOs and NTDC to ensure better management of operations at the GENCOs.

Private Transmission Policy

EPP reviewed the draft *Private Sector Transmission Policy*, and proposed several important changes to bring it in line with international best practice. The policy will facilitate private investment in and operation of transmission lines, with a particular focus on evacuation of power from large Independent Power Producers (IPPs) and imports.

Restructuring Support

As part of the GOP's commitment to restructure the market, CPPA is being removed from NTDC. EPP is reviewing the Business Transfer Agreements, the Market Structure and Payment and Settlements Rules as it advises both NTDC and MWP. Additionally, the EPP's Policy Team is reviewing the liability implications of NTDC's "stranded debt" and operations.

SUPPORT TO MINISTRY OF FINANCE

- **Financial Position of DISCOs:** EPP seconded staff reviewed the payables/receivables position of distribution companies for the first two quarters of the current financial year (up to 31st December, 2013).
- **Fee Structure of NEPRA:** EPP supported MOF review of the proposal submitted by the Cabinet Division for a 40% increase in the fee structure of the National Electric Power Regulatory Authority (NEPRA).
- **Standard Bankable Energy Purchase Agreement and Implementation Agreement:** An EPP Policy Expert reviewed the Standard Bankable Energy Purchase Agreement (EPA) and Implementation Agreement (IA) prepared by the Alternative Energy Development Board regarding fast-track power generation.

- **Subsidy to Electricity Consumers:** EPP facilitated the MOF review and draft comments on a summary submitted by MWP that proposes charging a sales tax on subsidies granted by the GOP to electricity consumers.
- **Circular Debt:** EPP reviewed the payables/receivables position of power sector distribution companies, and drafted a brief for the Secretary, Finance, on the outlook for power sector circular debt (at the end of the second quarter of current financial year:2013-14). A brief was also drafted for the Standing Committee of the Senate on Finance, Economic Affairs and Statistics, on the settlement of power sector circular debt amounting to Rs.480 Billion. EPP along with MOF held meetings with Asian Development Bank and briefed the participants about the overall performance of the power sector and discussed issues related to circular debt settlement to ADB.
- **Pakistan Energy Efficiency and Conservation Act 2013:** EPP supported MOF review and comments on the draft bill of the Pakistan Energy Efficiency and Conservation Act 2013. The bill will provide legal support for the establishment of institutions, and will stipulate mechanisms for the effective conservation and efficient use of energy in Pakistan.
- **National Power and Subsidy Policy Guidelines:** EPP seconded staff supported MOF review of the Draft National Power and Subsidy Policy Guidelines, 2014. The Guidelines will serve as a credible tool for policy-makers, planners, companies, regulators, and customers in achieving sustainability in the power sector
- **Gas Allocation to GENCOs:** Assisted the Ministry in developing comments on the draft summary for ECC regarding Allocation of Gas from SARA and Suri Fields to GENCO-II (Guddu).

SUPPORT TO MINISTRY OF PETROLEUM & NATURAL RESOURCES

LNG Imports

EPP facilitated the final negotiations between the stakeholders⁷ for the LNG Service Agreement (LSA) for a “Fast Track” LNG terminal to deliver LNG by November 2014. The LSA was also approved by the SSGCL Board. In meetings held with the LNG stakeholders in Karachi and Islamabad, the future course of action was agreed upon, and the site confirmed at PQA for the construction of the proposed LNG terminal.

The LNG Import Program was granted approval by ECC on February 28, 2014. This was a major milestone achievement for the program.

At the request of the GOP, EPP drafted SOWs for construction oversight and LNG policy support, and initiated a draft LNG Procurement Strategy. EPP responded to USAID queries on the GOP’s request for construction oversight and LNG policy support. However, USAID did not approve of the request.

In March, EPP held a series of meetings with all stakeholders to discuss the PQA scope of work, project status, and key implementation issues. The Implementation Agreement was initiated by PQA, and will be presented to the PQA Board for approval.

A meeting was also held with the Minister of Petroleum and Natural Resources and the Minister for Ports and Shipping covering EPP’s subcontractors technical input based on the Lloyds Registry report, as well as other details about the safety of the port.

During this reporting period, EPP regularly coordinated with its LNG consultants on program progress, and monitored the achievement of deliverables.

⁷ ISGS, SSGCL, and the selected bidder (ETPL)

Shale Gas

Work under Milestone-1 of the program was completed, and activities commenced under Milestone-2.

USAID Energy Office Director, Michael Curtis, participated in the Pakistan Oil and Gas 2014 Summit held on March 19, 2014 in Islamabad, and lent a presentation on the Shale Gas Program.

EPP regularly held meetings with the Advisor and Secretary, MPNR, and DGPC to discuss the program's status, including work under Milestone-1. On-the-job training for two MPNR staff members was initiated to develop expertise in shale gas software and best practices as part of a 4-week training program. However, one trainee resigned from his job during the course of the training.

Upstream Oil and Gas support

In January, EPP also met with the newly-appointed Advisor Petroleum, MPNR, and briefed him on EPP's petroleum sector programs, with a particular focus on the E&P program for upstream oil and gas. The Advisor confirmed MPNR's continued commitment to the programs.

The procurement request package for upstream oil and gas support was approved by USAID. Following USAID's approval and formal concurrence of the program by DGPC, EPP subcontracted with Petroleum Technology Solutions (PTS) to provide consultancy support in the upstream sector. A series of meetings were held with DGPC and PTS regarding the program's design, and a work plan was finalized.

EPP and PTS provided day-to-day advisory support to DGPC on a number of matters, including licenses and leases, gas pricing issues, supplemental agreements, unitization issue, and well notices.

SUPPORT TO MINISTRY OF PLANNING AND DEVELOPMENT

EPP staff seconded to the Ministry of Planning and Development provided support in drafting minutes of the CDWP meetings on the construction of Dasu Hydro Power Project and the preparation of detailed engineering design tender documents, and the PC-1 of Tarbela Dam's fifth extension.

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 trouble-shooting, and provided general technical assistance to the office of the Member Energy and the Minister of Planning and Development so that they could carry out routine assignments smoothly.

COMPONENT 3: NEW PROJECTS, PLANNING AND DEVELOPMENT

EPP provided advice and support to USAID in a month-long operational audit of WAPDA. The audit is a USAID requirement in anticipation of the U.S. \$250 Million that USAID has indicated it may disburse for hydropower projects being implemented by WAPDA. The scope of audit covered various operational aspects, including all phases and results of procurement of goods and services, contract monitoring, financing and funding of projects, audit procedures, and compliance with international best practice and GOP guidelines.

EPP continued to advise and assist USAID in evaluating the request from WAPDA to support four run-of-river hydropower projects: Duber; Allai; Khan Khawar; and Jinnah. The projects, if selected for G2G support, will add **419 MW of affordable and clean hydroelectric power** to the national grid. EPP received revised cost estimates from WAPDA for the projects, and shared this data with USAD for review. EPP provided suggestions and support to USAID in preparing for a Rapid Environmental Assessment (REA) of the 121 MW Alai Khwar and 130 MW Duber Khwar run-of-river hydropower projects.

In addition, EPP investigated and provided details to USAID of all hydropower projects under consideration, design, development and construction by Provincial Agencies in KPK, Punjab, Baluchistan, Sindh, GB and AJK.

In response to a request from USAID, EPP investigated and provided updated information on the 4,500 MW Diamer Basha Dam and Hydropower Project, the 7,100 MW Bunji Hydropower Project and the proposed 132 kV transmission line connecting Skardu and Gilgit, as well as the benefits these projects will accrue.

COMPONENT 4: NEW ACTIVITIES

TRANSMISSION

PESCO

EPP continued to focus on strengthening the power transmission network and on capacity building for power sector entities involved in transmission, with a particular emphasis on the Peshawar 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

EPP engineers conducted technical audits of five grid stations. To date, 82 of 86 (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:



FAT Test of 40 MVA PTF for Hattar GS in progress

the transformer at D.I. Khan is in progress. Once installed, the new transformer **will add 14 MVA in additional capacity to the grid.**

During this reporting period, Factory Acceptance Tests (FAT) for three 132/11.5kV, 40MVA Power Transformers for Jamrud, Hattar and D.I. Khan grid stations were witnessed and approved by EPP and PESCO engineers. The transformers were delivered to the respective grid stations, where the pre-commissioning tests were successfully completed. The transformers at Jamrud and Hattar were energized in March, **adding 28 MVA of transformation capacity to PESCO's grid.** Installation of

FATs on the 132/66 kV, 40 MVA repaired transformer were conducted in March. The transformer will be installed at Chakdara 132 kV GS.

- Cooling Fans:
The cooling fans installation was completed during this reporting period. At PESCO's request, EPP procured and installed 348 cooling fans on 47 PESCO GSs. **The installations helped recapturing 192.1 MVA of transformation capacity on PESCO's grid.**
- Oil Sampling:
The results of oil sample testing of 126 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

A total of seven (07) 145 kV SF6 Circuit Breakers (CBs) and their associated spare parts were delivered to PESCO grid stations. The installation, site testing and commissioning of these breakers

is being carried out by PESCO. One of the CB's was installed at the 132 kV Shabqadar GS. Foundations are being prepared for the installation of the remaining CB's.

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

Transmission Line

EPP completed technical audits of 15 of 41 NTDC grid stations (approximately 37% complete). The technical audits highlight problems and bottlenecks, and prioritize proposed corrective measures.

Enterprise Resource Planning (ERP)

EPP developed the draft Request for Proposal (RFP) for ERP, and shared this with the MD, NTDC and the Audit and Finance Committee for review and feedback.

Real Time Digital Simulator

EPP acquired the requirement of NTDC's Power Planning Department for a Real-Time Digital Simulator (RTDS), and developed a Scope of Work for the procurement of the RTDS. The RTDS is a training tool that simulates the transmission grid under various scenarios when generation station and transmission lines are out of service, and highlights the resulting operational issues.

Smart Metering System

EPP's Transmission Team, in consultation with NTDC, developed the SOW for the procurement of IT for the extension of Secured Metering System (SMS) data to DISCOs. Once installed, the SMS system will provide real-time system loading data to the NTDC, MWP, and NEPRA.

NTDC Design Department

Through a needs assessment conducted of the NTDC Design Department, EPP identified the software and hardware required by the design engineers to improve their design capabilities and efficiency.

Renewable Energy

Step I Due Diligence on the evacuation of power from wind power plants at Jhimpir and Gharo was completed after site verification.

EPP drafted the SOW for procurement of a renewable energy forecasting system for NTDC. The processes and software purchased will help NTDC with the integration of renewable resources into their grid.

CROSS-CUTTING ACTIVITIES

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

Throughout January 2014, EPP confirmed training dates, refined best practices for capacity building, and developed a strategy for long-term training opportunities for USAID in the energy sector.

Table 4: Capacity Building Activities

Progress/ Activities	Impacts	Issues/Constraints	Resolving Issues
<p>Power SIM Training Current Status: Two additional staff from MWP completed the Power SIM training. Training will be offered to CPPA in the coming month.</p>	<p>The training of two more Section Officers from MWP assisted EPP in developing an implementation strategy for Power SIM integration at MWP that will be deployed next quarter.</p>	<p>The Power SIM training must be completed with complete buy-in to create a sustainable best practice.</p>	<p>EPP is approaching the Joint Secretary to dedicate personnel and resources to full integration of Power SIM.</p>
<p>International LNG Business Management Certificate Program Current Status: The Capacity Building Advisor and Director – Policy Reform discussed capacity building needs and potential programs with PQA and SSGCL. EPP proposes training for SSGC and PQA, with the potential training of MPNR and ISGS staff for an upcoming International LNG Business Management Certificate Program. Nominees from MPNR, ISGS, PQA, and SSGC were received at the end of March. EPP will begin the VCS process during the first week of April.</p>	<p>The certificate program for MPNR, ISGS, PQA, and SSGC will build on the skills learned during the CLDP U.S. training from early March. This will assist the current staff of selected organizations in preparing for the first LNG imports in November 2014.</p>	<p>Currently, the capabilities of the stakeholder organizations related to LNG are not matching the required knowledge and skills to successfully run the operations and supply chain of incoming LNG.</p>	<p>Through a comprehensive training program of mid/senior management, EPP will be able to build knowledge and skills in selected organizations to create LNG experts in Pakistan, prepared for the first LNG imports in November 2014. EPP has experienced difficulty in receiving NOC's for nominees, and will engage in person with stakeholders to resolve this.</p>
<p>Shale Gas On-The-Job Training Activity Current Status: Only one MPNR stakeholder completed the LMKR shale gas exploration software training.</p>	<p>Through the on-the-job training, MPNR staff will developed the necessary skills to become resident shale gas experts at MPNR.</p>	<p>Only one staff member completed the training, although it started with two participants. The individual who left also left MPNR, which is a systemic problem at MPNR. They have difficulty in maintaining young, talented staff due to financial constraints for those with skills in the petroleum sector.</p>	<p>EPP is working with MPNR management and Directorate Generals to ensure the trained staff remain in their respective roles and are offered incentives to stay at the Ministry.</p>

Progress/ Activities	Impacts	Issues/Constraints	Resolving Issues
<p>Live Line Training Current status: Bids for a purchase order for a Live Line Training were received. Review will commence once country code exemption is approved.</p>	<p>The LLT assessment will review the current practices and recommend measures to improve the training. The LLT program will commence after the assessment is complete and findings are implemented.</p>	<p>None</p>	<p>N/A</p>
<p>Operations and Maintenance Training for GENCOS Current Status: The first day of training was on March 31 and currently in session</p>	<p>Through O&M training, the three GENCOS will be able to identify deficiencies in their current O&M practices and increase efficiency at their plants.</p>	<p>None</p>	<p>N/A</p>
<p>Coordination with Training for Pakistan Current Status: T4P hosted the first quarterly Participant Training Working Group and clarified their training request process.</p>	<p>Training programs outside of EPP's scope of work that can assist development objectives in energy and cross-cutting fields can be addressed by Training for Pakistan. EPP will develop Training Requests in the energy field but outside of EPP's current scope in the coming months.</p>	<p>None</p>	<p>N/A</p>

COMMUNICATIONS

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

During the reporting period, the Communications team organized and managed the Mangla PIL Ceremony held at EPP's office on March 6, 2014. The event was covered both by print and electronic media.

EPP's communications lead participated in a two-day training workshop organized by the USAID DOCs. The workshop provided further insight into USAID's strategic communications.

EPP lent support to the USAID Energy Office for planning media events.

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LIST OF KEY MEETINGS

Table 8: List of Key Meeting Conducted in January

Meeting	Date	Location	Purpose	Outcome/Result
NPGCL CEO & FARA Project Manager	Jan 2	Muzaffargarh TPS	Discuss the implementation of heat rate test	Heat rate test on all the six units completed in January
CPGCL Chief Engineer	Jan 6 & 7	Guddu TPS	Discuss the issues pertaining to amendment in service order and remaining equipment's	Amendment to the service order issued
USAID Program Advisor-Capacity Building	Jan 7	EPP Offices	Discuss EPP Training and Capacity Building Strategy	Revised strategy to incorporate energy sector opportunities outside of EPP
Directorate General – Petroleum Concessions	Jan 8	MPNR	Finalize nominations for technology exchange visit to Houston, TX regarding shale gas developments	Nominations were released by MPNR on January 27 th and EPP will review the nominees and develop logistics for exchange visit planned for end of FY2014.
USAID(OFM) & WAPDA	Jan 13	EPP Office	Discuss the Mangla Rehab Project payment mechanism	WAPDA started the working on payment schedule to USAID
Additional Finance Secretary (C.F) Mr.Martin P. Engelmann, Principal Financial Sector Specialist and Mr. Shauzab Ali, Senior Project Officer (Financial Sector)	Jan 20	MOF	Overall performance of the power sector.	Assisted the ADB team to prepare their report for submission to the bank management.
NTDC Design Department	Jan 22	WAPDA House, Lahore	Conduct needs assessment of NTDC Design department for requested IT tools for its capacity building	<ol style="list-style-type: none"> 1. A complete list of materials needed was finalized and it was concluded that the NTDC Design department is in dire need of this up-gradation. 2. A scope of work document was prepared
USAID and Training for Pakistan	Jan 22	USAID Islamabad	Discuss energy sector capacity building opportunities for Training for Pakistan outside of EPP	EPP will conduct a training needs assessment of MPNR and NTDC and identify opportunities for Training for Pakistan. Additionally, EPP will develop a Scope of Work for other energy sector entities for Training for Pakistan to carry out.

Meeting	Date	Location	Purpose	Outcome/Result
Member Power, GM Hydel	Jan 22-24	WAPDA House, Lahore	Discuss Mangla Rehab Project Payment Schedule, Opening of WAPDA Account for Project	Payment Schedule received from WAPDA and submitted to USAID
MWP Section Officers –Power SIM trainees	Jan 23	MWP	Follow-Up Evaluation of Power SIM training with section officers	MWP has not used the Power SIM since phase I of the training. EPP will conduct a review of the Power SIM training and get a buy-in from the Joint Secretary before moving forward with future training.
Meeting with ADB team headed by Miss.F.Cleo Kawawaki with Sr. Joint Secretary (Corporate Finance).	Jan 27	MOF	Brief the ADB team about the transaction of settlement of power circular debt undertaken by Ministry of Finance in June-July, 2013	Assisted the ADB team to prepare their report for submission to the bank management.
CEO and FD of JPCL	Jan 28 & 29	Jamshoro TPS	Facilitate in preparation of tariff petition for filing to NEPRA	Draft prepared. JPCL to file tariff petition to NEPRA
Dinsons-Subcontractor	Jan 30	EPP Islamabad	Discuss training logistics for Thermal Series	Finalized dates for upcoming O&M Thermal Series. To start in March 2014.

Table 9: List of Key Meeting Conducted in February

Meeting with	Date	Location	Purpose	Outcome/Result
Chairman PQA	Feb 3	PQA, Karachi	To review EPP's support for implementation of LNG program at PQA	The program, issues, capacity building and future course of action was agreed
SSGCL	Feb 3	SSGCL, Karachi	To review EPP's support for implementation of LNG program at PQA and SSGCL's feedback on other areas of support	The program and capacity building needs were discussed and future course of action was agreed
Deputy Mission Director USAID, and Economic Officers USAID	Feb 3	US Consulate, Karachi	Present the LNG program and implementation support to PQA	USAID expressed interest in key aspects of the LNG program
MD ISGS	Feb 6	Islamabad	Discuss follow-up on the LNG program.	QED was requested to expedite the Work Plan from Jan-Apr 2014
CPPA and NTDC	Feb 11	NTDC Lahore	Introduction of PSIM model to NTDC Staff	The model will be discussed in detail with them to tailor it as per their needs

Meeting with	Date	Location	Purpose	Outcome/Result
PESCO	Feb 13	PESCO HQ, Peshawar	Discuss Installation locations for power transformers under repair at PTESU & HEC	The location for 40MVA transformer was decided to be Chakdara GS, and location for 26MVA transformer as Gadoon Amazi.
Training for Pakistan	Feb 13	Islamabad	Discuss Training Request Protocol further	EPP will develop training request interventions in energy outside of current scope
Shale Gas participants	Feb 14	EPP	Review the objectives and goals of training	The program will develop in a sustainable manner and participants will be interviewed throughout the program
SSGCL	Feb 19	Karachi	Discuss Capacity Building Gaps	Reviewed gaps and identified potential training interventions
SSGCL and PQA	Feb 19 & 20	Karachi	Capacity building for LNG Program	Priority areas were identified
PQA	Feb 20	Karachi	Discuss Capacity Building Gaps	Reviewed gaps and identified potential training interventions
Joint Secretary MOWP	Feb 22 & 24	MOWP	Discuss the provisions in the Power Purchase Agreements	EPP will draft power purchase agreements in close coordination with MOWP
Advisor MPNR, Secretary MPNR, and USAID	Feb 24	Islamabad	Discussion on the petroleum sector programs of USAID	The Advisor appreciated USAID's efforts and ensured his full cooperation and support for the initiatives.
Power SIM participants	Feb 26	Islamabad	Review the objectives and goals of training	The program will develop in a sustainable manner and participants will be interviewed throughout the program
DGPC, and LMKR / NuTech	Feb 27	DGPC Office, Islamabad	Updates on Shale Gas Milestone I development, pending issues related to the program.	Agreement by DGPC to expedite the operational issues, such as provision of data and authorization for export of core sample, nominations for the US training

Table 10: List of Key Meeting Conducted in March

Meeting with	Date	Location	Purpose	Outcome/Result
CE Tarbela, RE Tarbela	Mar 7	Tarbela Power Station	Collection of Data to prepare EMMP for Phase-II of Tarbela Rehab	EMMP prepared and submitted to USAID for review
USAID Project Manager for GENCOs, GE & Guddu	Mar 11	EPP Office	To discuss implementation Schedule of Guddu Rehab Project & discuss the issues	Rehab work started at Guddu on Mar 13. USAID expedited the process for the issuance of tax exemption certificate for the equipment
USAID Project Manager for GENCOs	Mar 18	EPP Office	To discuss the status of GENCOs	Briefed the progress of GENCOs
Guddu Project Manager & GE	Mar 19	Guddu Thermal Power Station	To Monitor & discuss the progress of on-going Rehab work	Progress discussed and inspected
USAID Project Manager for GENCOs	Mar 25	EPP Office	To discuss the status of GENCOs	Briefed the progress of GENCOs
USAID REA-OAPA, USAID DMEQ, Alternate COR	Mar 19	EPP Office	Revision of the approved Negative Determination with Conditions, for "Specialized Services in Developing a LNG Supply Chain for MPNR" to Categorical Exclusion and discuss initial comments on Tarbela EDF/EMMP	Revised EMMP of Tarbela submitted to USAID Preparation of EMMP for LNG is in progress.
USAID, QED,	Mar 3	Islamabad	Briefing/update on LNG Program.	USAID was informed about the PQA SOW, actual achievements, issues, additional consulting support required, and forthcoming stakeholders meetings in Karachi.
Advisor MPNR, DGPC, PTS	Mar 5	DGPC Office, Islamabad	To discuss the draft Six-Months Work Plan	Six-Months Work Plan was finalized after incorporating the inputs & comments of Advisor MPNR and DGPC.
Minister MPNR, Minister Ports & Shipping, PQA, SSGC, QED	Mar 7	PQA, Karachi	To discuss the issues/challenges in implementation of LNG program at PQA.	The program, issues, and future course of action was agreed. Work Plan for project implementation was finalized.
Series of meetings among SSGC, ETPL, QED	Mar 7-13	SSGC, ETPL, Karachi	To discuss the Options Agreement.	The meetings were highly interactive with discussions mainly focusing on LSA and other direct agreements.
PQA, ETPL, QED	Mar 8-9	PQA, Karachi	To discuss key issues regarding IA between PQA and ETPL.	IA was initiated and would be presented to PQA Board for approval.
Chairman PQA, ETPL	Mar 10	PNSC, Karachi	Discuss pending issued related to IA.	Some clauses were amended after discussions.
Advisor MPNR, LMKR, NuTech	Mar 11	Pak Sect., Islamabad	Briefing on NuTech visit to HDIP.	Advisor was informed that additional data / core samples

				were required due to insufficient core data available with HDIP. DGPC would be requested for release of additional cores/cuttings available with private companies.
Addl. Secretary, MPNR	Mar 19	Pak Sect. Islamabad	To discuss the Shale Gas Program	Addl. Secretary was informed about the program as well as the progress on milestone -I. Addl. Secretary requested for support in evaluation of PPL / ENI proposals regarding Shale Gas Pilot Projects. PTS / ARI were requested to evaluate the proposals and provide the necessary input.
NTDC (GM GSO, GM GSC, GM Projects, GM Planning and Director Environment and Social Compliance Cell)	Mar 23, 2014	WAPDA House, LHR	To discuss EPP's assistance to NTDC	EPP proposed communication scheme was briefed. It was agreed that EPP would provide NTDC the revised SOW for Capacity Building needs. Mr. Sadaf, EPP Environment Expert, discussed the various projects undertaken by EPP for PESCO and NTDC.
Participant Training Working Group	Mar 20	Islamabad	Discuss capacity building across USAID Pakistan	Delivery quarterly presentation and review of programs.
USAID M&E – Margaret Harritt	Mar 28	Islamabad	Discuss PakInfo, M&E Plan, updates to PIRs and DQA	Resolved that the new beneficiaries figures will be determined by Harritt for 2nd Quarter FY2014 PakInfo entry, EPP will update M&E plan accordingly and prepare for MSI DQA process in May, 2014.
MPNR – DG Liquid Gas	Mar 28	Islamabad	Check on the status of MPNR nominee for LNG Certificate Program	Resolved that the Secretary of MPNR division needed to approve and sign NOC. Meeting Secretary during first week of April.

ENERGY POLICY PROGRAM

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