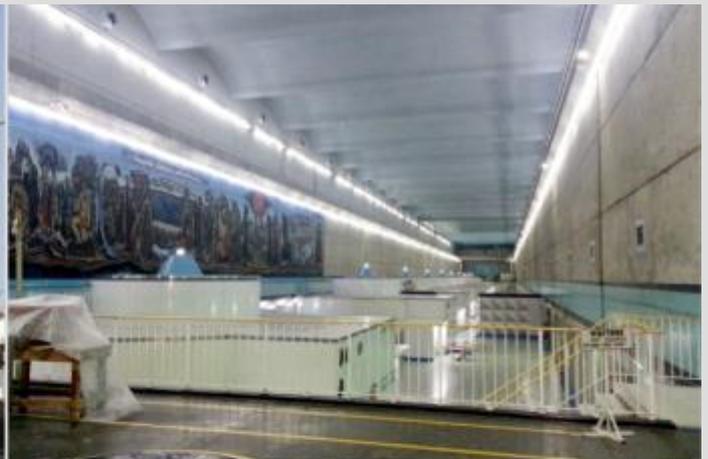




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USAID ENERGY POLICY PROGRAM QUARTERLY PROGRESS REPORT April-June 2015



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USAID ENERGY POLICY PROGRAM

QUARTERLY PROGRESS REPORT April-June 2015

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ACRONYMS

AEAI	Advanced Engineering Associates International, Inc.
BTA	Business Transfer Agreement
CFW	Corporate Finance Wing
CPPA	Central Power Purchasing Authority
DGPC	Director General Petroleum Concessions
DISCO	Distribution Company
DGPC	Director General Petroleum Concessions
ECC	Economic coordinating Committee
ECIL	Engineering Consultants Int. Pvt. Ltd.
EETL	Engro Elengy Terminal Limited
EMMP	Environmental Mitigation and Monitoring Plan
EPP	Energy Policy Program
FARA	Fixed Amount Reimbursement Agreement
FGE	Facts Global Energy
FSRU	Floating Storage and Regasification Unit
G2G	Government-to-Government
GENCO	Generation Company
GIS	Geographical Information System
GOP	Government of Pakistan
GSC	Grid Systems Construction
GSO	Grid Systems Operation
ISGS	Interstate Gas System
JPCL	Jamshoro Power Company Limited
kV	Kilovolts
LEAP	Long-Range Energy Alternatives Planning System
LNG	Liquefied Natural Gas
LSA	LNG Services Agreement
MPNR	Ministry of Petroleum and Natural Resources
MW	Megawatt
MWP	Ministry of Water and Power
NEPRA	National Electric Power Regulatory Authority
NPCC	National Power Control Center
NPCL	Northern Power Generation Company Limited
NTDC	National Transmission and Dispatch Company
PESCO	Peshawar Electricity Supply Company
PIL	Project Implementation Letter
PowerSIM	Power Sector Integrated Model
PPA	Power Purchase Agreement
PQA	Port Qasim Authority
PSO	Pakistan State Oil Company
SPA	Sales Purchase Agreement

SSGC	Sui Southern Gas Company
SIGTTO	Society of International Gas Terminals and Tankers Association
USAID	United States Agency for International Development
USG	United States Government
WAPDA	Water and Power Development Authority
WFW	Watson Farley & Williams
WPPO	WAPDA Power Privatization Organization

EXECUTIVE SUMMARY

During April-June 2015, the Energy Policy Program (EPP) continued to provide monitoring and implementation support for the seven USAID funded Government to Government Signature Energy Projects in Pakistan. As of June 2015, \$153.49million has been disbursed to the Government of Pakistan implementing partners, and 1013 MW have been added to Pakistan's national grid.

Project Monitoring and Evaluation

During the Quarter, EPP's Environmental expert visited Muzaffargarh, Guddu, and Jamshoro Thermal Power Stations to ensure that the on-going rehabilitation work is in compliance with the Government of Pakistan and United States Government regulations as recommended in the approved Environmental Mitigation and Monitoring Plan (EMMP).

During April, EPP met with Water and Power Development Authority to discuss the procurement of major equipment for units 5-6 of the Mangla Thermal Power Project, including turbines and generators, and funding arrangements for an additional four units.

EPP facilitated the visit of USAID in May to the Satpara Multipurpose Dam Project upon its completion. The dam is now capable of generating 17.6 MW of electricity and irrigating 15,500 acres of land. EPP also facilitated USAID visits to the Jamshoro and Guddu Thermal Power Stations for the purpose of expediting installation of remaining equipment.

During June, EPP Engineers visited Tarbela Power Station for inspection of the SCADA System, under Tarbela Phase-I. EPP certified Water and Power Development Authority (WAPDA) invoices of \$900,000 for the SCADA system, which will increase the sustainability and reliability of the power plant operations. EPP also submitted its assessment on the cost estimates provided by WAPDA for equipment under Tarbela Phase-II to USAID and shared the payment milestone schedule and equipment technical specifications with USAID. The project will add 20 MW to the national grid and add to the sustainability of the power plant operations.

EPP also facilitated a meeting of USAID with the chief executive officer of GENCO Holding company Ltd. and chief executives of all the generating companies (GENCOs) to expedite procurement of the remaining equipment at the Jamshoro, Guddu, and Muzaffargarh Thermal Power Stations and provided minutes of the meeting to USAID.

Policy and Reform

EPP worked closely with Jamshoro Power Company Limited (JPCL) and the Ministry of Water and Power (WAPDA) in development of the Power Purchase Agreement to be signed between the Central Power Purchasing Authority and JPCL and used as a prototype for other projects. EPP completed the final draft of the Thermal Power Plant Power Purchase Agreement, which was sent to MWP and to the GENCOs for comments. EPP is continuing to work with the Ministry on the draft Electricity Act so that it more closely aligns with Pakistan's power sector and the Government's plans for market reform.

The strategic planning team completed the final draft of Part I of the NTDC Strategic Business Plan 2016-2020 on April 19. The strategic objectives focus on the technical issues facing NTDC and the recommended actions to move forward to achieve the NTDC's long-term vision. The first five of these initiatives are to: enforce Grid Code compliance to achieve system reliability, reduce transmission line and equipment overloading, eliminate current shortfalls and limit the growth in shortfall of transmission network transfer capability, separate CPPA and restructuring of NTDC, and develop a renewable and alternative energy strategy. During June, EPP held a series of meetings with NTDC Management, Strategic Planning Group, and Strategic Planning Committee Board to review the key performance measures included in the NTDC Strategic Business Plan.

During the Quarter, development continued on the Connection Agreement as required under the Grid Code for each connection point on the National Transmission and Despatch Company (NTDC) system. EPP reviewed the Power Generation Policy 2015 and provided comments to MWP regarding the separation of Central Power Purchasing Authority (CPPA) from the NTDC.

Throughout the Quarter, EPP continued working with the Technical Staff of the Ministry of Finance on development of the Local Area Network (LAN) at Energy Wing, Planning Commission. EPP also updated the daily power supply demand scenario and shortfall in the NTDC system based on the daily data received from National Power Control Center (NPCC).

The PowerSIM model, which was introduced in the Energy Reforms Unit of Ministry of Finance, has been well received and acknowledged for its capability to project cash flows of the power sector. EPP's team updated the model with 2013-14 data and demonstrated the capabilities of the model to Ministry officials. Training on PowerSIM will be continued through July.

EPP's team at the Ministry of Finance supported a variety of tasks as requested by the Corporate Finance Wing, including: finalizing the tariff differential subsidy allocation for the revised 2014-15 budget and for the next financial year 2015-16; analyzing the funds requirement of CPPA for ensuring un-interrupted power supply at the time of Sehri and Iftar during the Holy Month of Ramadan; and assisting with tariff differential subsidy levels for distribution companies.

EPP support at the Ministry of Petroleum and Natural Resources, included finalizing the Liquefied Natural Gas (LNG) Services Waiver Agreement and Time Charter Party Agreement with Elengy Terminal Pakistan Ltd. (EETL) for transporting the next four LNG cargoes from Qatar. It also provided support to GOP in finalizing the Government-to-Government (G2G) agreement with Qatargas, including the LNG SPA negotiations with Qatargas in Islamabad May 7 and 8. The Security Risk Assessment conducted during May 5-8 at Port Qasim was declared acceptable by Qatargas. Port tariff for LNG carriers calling at Port Qasim Authority (PQA) was revised by EPP on the basis of additional inputs and parameters communicated by PQA. A draft gazette notification for port tariff for LNG carriers was also prepared and submitted to PQA, which approved the port tariff model for LNG vessels in a meeting held on May 15. A review meeting with EPP partners was held on May 27 to discuss infrastructure, technology, and costs for shale gas production.

Continued support at Ministry of Petroleum and Natural Resources included providing further inputs during June to frame responses to queries raised by bidders on the spot LNG tender. The finalized response was uploaded on the Pakistan State Oil (PSO) website. EPP's team supported PSO in the bids review process for the spot LNG tender in Karachi during June 15-18; PSO has now finalized the bids evaluation. EPP team briefed the Secretary, Ministry of Petroleum and Natural Resources on the status of the support being provided to MPNR June 10.

New Projects Planning and Development

USAID and EPP are continuing to work with WAPDA to identify eligible costs of works and to finalize the Activity Agreement milestone dates for the disbursement and payment schedule for the proposed \$81 million USAID funding for the Kaitu Weir Project. The Planning Commission PC-I of the project amounting to \$126 million has been approved by the GOP with \$81 million for Kaitu Weir and associated structures and command area development to be financed by USAID and \$45 million in loans to be provided through a loan process underway with the Italian Government.

To date, 505.2 MW of transmission throughput capacity have been added to PESCO's network as a result of EPP's assistance. The registration process is underway for the four new telescopic bucket trucks, which will help PESCO in effective and efficient maintenance of their facilities. The final report summarizing the individual technical audit reports highlighting the shortcomings and recommendations for preventive and corrective measures was delivered to PESCO June 26.

Technical audits and reports for all 45 grid stations were compiled during the Quarter and the final report provided to the NTDC Managing Director on June 30. The reports propose steps necessary

for carrying out both preventive and corrective maintenance and also recommend infrastructure upgrades and augmentation where necessary.

Capacity Building

The live-line maintenance refresher training course for FESCO linemen, which started on May 26 was concluded on June 19. EPP met with the live-line maintenance crew to conduct a monitoring and evaluation session with the participants from FESCO on June 19 and compiled a report based on the feedback given by the engineers and linemen. The live-line training for 20 linemen from LESCO and QESCO started on May 18 and will be completed on Oct. 2, 2015. EPP has completed the three of the five refresher courses at IESCO, PESCO, and FESCO; the fourth refresher course at GEPCO will commence in July 2015.

A Focus group discussion was conducted on June 2 at Ghazi Barotha Power Station to monitor the progress made during Hydro Operations and Maintenance Training. Participants highlighted the improvements made in the optimal operations of the plant with training based on different departmental criteria.

Twenty-seven percent of trainees participating in the NTDC exchange visits were female. Between April and June 2015, during the Design Center Training Course at NTDC the following percentage of trainees were female: 36% in AUTOCAD, 21% in PLS-CADD, 23% in PLS-Tower, 20% in PLS-Pole, 20% in SAPS, 37% in SAGSEC, 25% in CAISON, 36% in ARCGIS, 33% in MS Project, and 27% in Bentley Substation.

COMPONENT I: PROJECT MONITORING AND IMPLEMENTATION

During the Second Quarter, EPP's Environmental expert visited Muzaffargarh, Guddu, and Jamshoro Thermal Power Stations to ensure that the on-going rehabilitation work under the Fixed Amount Reimbursable Agreement (FARA) is in compliance with the Government of Pakistan (GOP) and United States Government (USG) regulations as recommended in the approved Environmental Mitigation and Monitoring Plan (EMMP).

Table I below summarizes the results achieved through Government to Government (G2) projects during April-June 2015.

Table I: Quarterly Results Achieved through G2G Projects

Projects	USG Funding (\$ Million)	Disbursed (\$ Million)	Completion Date	MW Gains/Benefits	
				Target	Achieved (June 27, 2015)
Tarbela (Phase-I)	16.50	15.55	12/31/15	128.0 MW	128.0 MW
Jamshoro	19.32	19.32	7/31/15	150.0 MW	270.0 MW
Guddu	19.12	18.91	7/31/15	75.0 MW	80.0 MW
Muzaffargarh	15.77	15.71	7/31/15	475.0 MW	500.0 MW
Gomal Zam	45.00	45.00	Complete	17.4 MW	17.4 MW
Satpara	26.00	26.00	Complete	17.6 MW	17.6 MW
Mangla	150.00	13.00	12/31/17	90 MW	In progress
Tarbela (Phase-II)	25.00	Signing of PIL is in Progress	12/31/16	20 MW	In progress
Total	316.71	153.49		973 MW	1013 MW

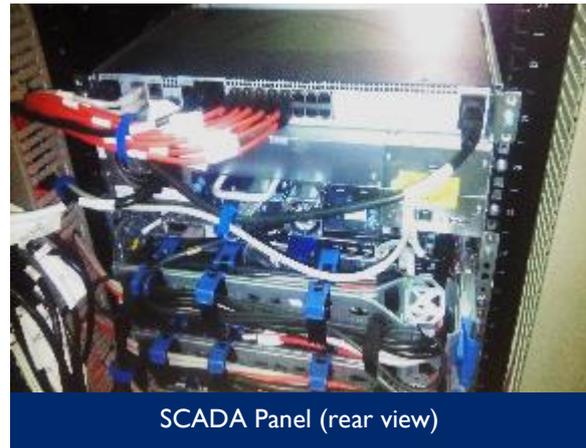
REHABILITATION OF TARBELA HYDROPOWER PLANT

Phase-I. During the Quarter, EPP engineers visited Tarbela Power Station for inspection of drainage and dewatering pumps of units 1-10 and SCADA System units 1-14. Subsequently, EPP certified WAPDA invoices of \$1.3 million for this equipment and forwarded the necessary paper work to USAID for further processing. EPP Engineers visited Tarbela Power Station for inspection of the SCADA System, and subsequently, EPP certified Water and Power Development Authority (WAPDA) invoices of \$900,000 against the arrived equipment and forwarded them to USAID for further processing. The SCADA system will increase the sustainability and reliability of the power plant operations. EPP also facilitated Tarbela in preparing the quarterly accrual report, which was submitted to USAID. EPP met with WAPDA to expedite the procurement of the remaining equipment.

Phase-II. During the Quarter, EPP provided USAID with the details of WAPDA Tarbela Operation and Maintenance Account and the Special Assignment Account, which are the condition precedents set forth in Activity Agreement. Subsequent to the opening of these accounts, EPP is providing support to USAID in providing additional information from WAPDA regarding the accounts.

Subsequent to the opening of WAPDA/Tarbela Operation and Maintenance Account and Special Assignment Account for Tarbela phase II, EPP provided additional information to USAID regarding the account, fulfilling the conditions precedent set forth in Activity Agreement to expedite signing of the PIL.

In June, EPP submitted its assessment on the cost estimates provided by WAPDA for equipment under Tarbela Phase-II to USAID and also shared the payment milestone schedule and equipment technical specifications with USAID. This action will help in finalizing the PIL. The project will add 20 MW to the national grid and add to the sustainability of the power plant operations.



MANGLA DAM REHABILITATION PROJECT

During the Quarter, EPP met with WAPDA to discuss the procurement of major equipment for units 5-6 of the Mangla Thermal Power Project, including turbines and generators, funding arrangements for an additional four units, and impacts of the completion of units 5 and 6. Subsequently, EPP provided USAID the updated procurement status of major equipment, including turbines and generators for units 5 and 6, and also advised WAPDA regarding negotiating a fast track schedule with the vendor to complete the project by December 2017.

EPP's Environmental Expert also visited the power station to ensure that the works are in compliance with the GOP and USG regulations as recommended in the approved EMMP, and EPP submitted the environmental monitoring and audit report to USAID. In June, EPP also facilitated Mangla Dam Rehabilitation Project in preparing the quarterly accrual report, which was submitted to USAID.



MUZAFFARGARH THERMAL POWER STATION REHABILITATION PROJECT

In June, EPP facilitated a meeting of USAID with the chief executive of GENCO Holding Company, Ltd. (GHCL) and executives of all the GENCOs. This meeting was critical in expediting the procurement of the remaining equipment at the Jamshoro, Guddu, and Muzaffargarh Thermal Power Stations. The minutes of the EPP facilitated and the response of Muzaffargarh were provided to USAID. EPP also facilitated Muzaffargarh in preparing the quarterly accrual report, which was submitted to USAID.



Muzaffargarh Thermal Power Station

EPP's Environmental expert visited Muzaffargarh Power Station to ensure that the on-going rehabilitation work under FARA is in compliance with the GOP and USG regulations as recommended in the approved EMMP. EPP provided an update to USAID on the progress of remaining items at Muzaffargarh. These remaining items will add to the reliability of the power plant operations.

GUDDU THERMAL POWER STATION REHABILITATION PROJECT

EPP's Environmental expert visited Guddu Power Station to ensure that the on-going rehabilitation work under FARA is in compliance with the GOP and USG regulations as recommended in the approved EMMP. EPP also provided updates to USAID on the progress of remaining items at Guddu. These remaining items will add to the reliability of the power plant operations. Subsequent to the site visit, EPP submitted an environmental monitoring and audit report to USAID. EPP also facilitated USAID in visiting Guddu Thermal Power Station for the purpose of expediting the installation of the remaining equipment. EPP also facilitated Guddu in preparing the quarterly accrual report, which was submitted to USAID.



Guddu Thermal Power Station

EPP also submitted a draft heat rate test report conducted at units GT-7, GT-8, and ST-5, which were rehabilitated under USAID funding, to Guddu management for their review and comments. The tests were conducted by an independent engineering firm (Pakistan Engineering Services) and will help Guddu to obtain a revised tariff from National Electric Power Regulatory Authority (NEPRA).

Following the June meeting of USAID and the GHCL, EPP circulated the minutes of the meeting and also provided the response of Guddu to USAID on the issues highlighted in the meeting.

JAMSHORO THERMAL POWER STATION REHABILITATION PROJECT

EPP's Environmental expert visited Jamshoro Power Station to ensure that the on-going rehabilitation work under FARA are in compliance with the GOP and USG regulations as recommended in the approved EMMP, and subsequent to the site visit, EPP submitted an environmental monitoring and audit report to USAID. EPP provided updates to USAID on the progress of remaining items at Jamshoro. These remaining items will add to the reliability of the power plant operations.



Jamshoro Thermal Power Station

EPP facilitated USAID in visiting Jamshoro Thermal Power Station for the purpose of expediting the installation of the remaining equipment. EPP also facilitated Jamshoro in preparing the quarterly accrual report, which was submitted to USAID.

SATPARA MULTIPURPOSE DAM PROJECT

EPP facilitated the May USAID visit to the Satpara Multipurpose Dam Project upon its completion. The project is now capable of generating 17.6 MW of electricity and also irrigating 15,500 acres of land. As planned, WAPDA is pursuing a project to deviate Shatung Nalluh at Deosai Plains (12,000 feet above Sea Level) into Satpara Dam, which will further improve electricity generation and water availability year around.



Satpara Multipurpose Dam Project

COMPONENT 2: POLICY AND REFORM

SUPPORT TO MINISTRY OF WATER AND POWER

Power Purchase Agreements. During the Quarter, EPP worked closely with JPCL and MWP in development of the Power Purchase Agreement (PPA) to be signed between Central Power Purchasing Authority (CPPA) and JPCL and used as a prototype. There were no technical and commercial documents available, which are to be used by the NTDC for important functions, (e.g., wheeling, metering, interconnection, and dispatch and operations), and these had to be drafted as the World Bank requested they be provided as separate agreements. Following acceptance by the World Bank, the PPA was forwarded to all the GENCOs for review and signature. As part of the continuing support to MWP, EPP is awaiting comments from the GENCOs and will update the PPAs as appropriate based on the comments received. The EPP team again visited JPCL to work with the PPA review committee to collect and verify company specific information and to finalize the schedules. The PPAs are awaiting signatures.

Policy Analysis. MWP has requested EPP to analyse the changes in cost of generation by switching fuels. The EPP developed Power Sector Integrated Model (PowerSIM) was used as the policy analysis tool in this task and is being used by GOP in scenario analysis of the power sector.

Energy Sector Case Study. EPP is developing a report for MWP highlighting the energy sector of Turkey. The report will include an overview of the energy sector, sector organization, and outlook. Reviewing the energy sector of different countries is useful for determining how Pakistan can benefit from the experiences of other countries.

Connection Agreement. EPP continued development of a Connection Agreement that is required under the NTDC's Grid Code. The new PPAs do not include Grid Code requirements for connection of a customer (i.e., a DISCO). A connection agreement will be required for each connection point on the NTDC's system. EPP is meeting with MWP to get additional direction on the proposed connection code agreement before it can be implemented.

Market Rules. The Market Rules for the next step in the development of the new energy market were placed on the NEPRA website and have been notified by NEPRA. EPP had provided comments on the Market Rules and worked with MWP in the final phase of development.

Power Generation Policy 2015. EPP reviewed the Power Generation Policy 2015 and provided comments to MWP. The main items included recognizing the separation of Central Power Purchasing Authority (CPPA) from the NTDC, ensuring consistency with the Grid Code, and ensuring that new power generation coming online is consistent with the official NTDC Least Cost Development Plan.

Indian Power Sector Analysis. EPP prepared a report analyzing the Indian Power sector to determine areas in which Pakistan can benefit from the experiences of that country. The report, which includes an overview of the power sector in India and the mandates of federal and provincial governments, provides insight into successful reform practices that can be modeled by Pakistan. It will particularly be useful for analyzing the differences between the power sectors of the two countries and for reviewing the current Electricity Act for Pakistan (which is based primarily upon the Indian Act 2003).

SUPPORT TO NATIONAL TRANSMISSION AND DESPATCH COMPANY

NTDC Amended Transmission License. At the request of MWP, EPP worked on development of a draft license that would recognize the removal of CPPA from NTDC. The Policy Group assisted the NTDC Board in filing with National Electric Power Regulatory Authority (NEPRA) for an Amended Transmission License. The filing documents were prepared by Policy Group staff, who attended a Special Board Meeting to provide advice to the board on the filing. Advice was also provided on the proposed Board Resolution to approve filing the Application for Amendment of the NTDC Transmission License with NEPRA, which was made by NTDC on May 8.

NTDC Strategic Business Plan. The final draft of the Strategic Plan was completed in April and the Board of Directors Chairman began implementation of several initiatives identified in the NTDC Plan. These include meeting the Strategic Plan Performance Targets for (1) Frequency Response; (2) Operating Reserve Margin; (3) SCADA System Functionality; (4) Addressing Network Overloading Conditions; (5) Development of HVDC Training Program; and (6) CPPA Separation.

Planned May meetings with NTDC management for reviewing the Strategic Plan Performance Measures were cancelled twice due to problems associated with Visa and No Objection Clearance Certificate documents. In June, EPP held various meetings with NTDC Management, NTDC Strategic Planning Group, and NTDC Board Strategic Planning Committee to review the Key Performance Indicators (KPIs) included in the plan. The final KPI Scorecard for the Strategic Plan and NTDC Board Performance Contract will be presented to the NTDC full Board for approval at the

Business Transfer Agreement. At the request of the NTDC Board Chairman, the Policy Group prepared a white paper describing the major concerns the NTDC Board and management have with the proposed Business Transfer Agreement. The white paper was reviewed by NTDC Board and forwarded to the Joint Secretary MWP by the NTDC Board Chairman. At a meeting held in the office of the Joint Secretary MWP on May 16, the recommendations included in the white paper were accepted by MWP, and the Business Transfer Agreement was approved by the NTDC Board at the Special Board meeting on May 23, 2015.

The EPP team met with WAPDA Power Privatization Organization (WPPO) Finance Director the week of June 15 to collect data for Business Transfer Agreement Schedules I, II, and III and obtain employee information to update the list of WPPO and CPPA employees to be seconded to Central Power Purchasing Agency-Guarantee (CPPA-G). Work will continue on completing the supporting schedules for the BTA during July.

Administrative Agreement for PPAs. The separation of CPPA from NTDC and restructuring of NTDC results in a requirement for an Administration Agreement for the Power Purchase Agreements (PPAs). EPP Policy Group coordinated the preparation of an Administration Agreement among NTDC, WAPDA, and CPPA-G for performing the former responsibilities of CPPA in the procurement of electricity and sale to the DISCOs. The agreement was reviewed, changes were made by NTDC's legal advisor, and the final agreement was approved by the NTDC Board of Directors on June 2, 2015.

Corporate Governance Summary. At the request of NTDC Board Chairman, EPP prepared a summary of the Corporate Governance Rules 2013 for Public Sector Entities. The summary included the list of governance requirements in the rules that could be applicable to the NTDC Board.

SUPPORT TO MINISTRY OF PLANNING AND DEVELOPMENT

Implementation of E-Governance. During the Quarter, EPP continued working with the Technical Staff of Planning Commission for development of the Local Area Network (LAN) at Energy Wing, Planning Commission. EPP also provided system and IT assistance to Member Energy in daily activities.

Technical Assistance. Through its seconded staff, EPP continued to provide general technical assistance, system and network administration to the offices of Member Energy and provided support for routine tasks. EPP also updated the daily power supply demand scenario and shortfall in the NTDC system based on the daily data received from NPCC. At the request of Member Energy, EPP updated the Power Generation Plan 2015-19 in coordination with officials from the Prime Minister Delivery Unit.

Policy Analysis and Planning. During the Quarter, EPP assisted Member Energy in organizing a First Round-Table Conference on Geographical Information System (GIS) in Physical Planning, Resource Management, Governance and Business at the Planning Commission held in May. The session was attended by a large number of high ranking private and public sector officials. EPP staff assisted Member Energy in preparing the presentation and conference report, which covered the background, outcome, and way forward to formulate a GIS policy. EPP assisted in organizing the Second Round Table Conference on Geographical Information System (GIS) in Physical Planning, Resource Management, Governance and Business in Planning Commission I June, with several high ranking officials from public and private sector participated in the daylong conference. EPP also assisted in finalizing the Report of the First Conference and shared with the participants a presentation for Member Energy on the topic, which covered background, outcome, and way forward to formulate GIS policy that allows sharing of information among public and private entities. EPP also assisted in organizing a Geographic Information System (GIS) Core Group meeting this week at the Energy Wing to discuss status of tasks assigned to each GIS working group.

EPP continued assisting Planning Commission with datasets of the nationwide transmission system, power generation plants, and upcoming projects underway in collaboration with Space and Upper Atmosphere Research Commission (SUPARCO) and Director General Petroleum Concessions.

PowerSIM. Throughout the Quarter, EPP continued training at the Energy Wing, including providing the participants with details of the PowerSIM model's structure, limitations, input sheets, and policy analysis.

Project Documentation. EPP prepared a list of documents that were delivered to USAID and the Government of Pakistan (GOP) over the span of the project period using the Quarterly Reports. In compliance with the requirements for closeout and audit, EPP is collecting and compiling copies of all the deliverables submitted to the MWP and the Planning Commission.

SUPPORT TO MINISTRY OF FINANCE

During the Quarter, assistance was provided to Corporate Finance Wing of Ministry of Finance in preparation of their proposals for the Committee constituted by the Cabinet Division to review the laws and working of the regulatory bodies and to formulate recommendations for their reforms. Corporate Finance Wing of Ministry of Finance was also assisted in preparation of comments on the summary for the Economic Coordination Committee submitted by the Ministry of Water and Power proposing reduction in sales tax on high sulphur diesel (HSD) being used by five independent power producers.

EPP assisted in preparation of comments on the proposal submitted by the Government of Punjab and Ministry of Water and Power to mitigate the risk in case of non-supply of RLNG to proposed new power plants to be established in the public sector. It also assisted in preparation of the

proposals for financing of the South-North Gas Pipeline, which is proposed to be constructed by Sui Southern Gas Company Limited (SSGCL) and Sui Northern Gas Pipeline Limited (SNGPL) for supply of RLNG to existing plants and proposed power plants to be established in the public sector.

In May, The PowerSIM model, which was introduced in the Energy Reforms Unit of Ministry of Finance, was well received and acknowledged for its capability to project the cash flows of the power sector. EPP's team updated the model with 2013-14 data and demonstrated the capabilities of the model to MOF officials. The trainings on Power SIM continued throughout May and June.

EPP's team provided a briefing to Senior Joint Secretary Corporate Finance Wing regarding Gas Infrastructure Development Surcharge, which was discussed in the Provincial Coordination Committee meeting held on June 5, 2015. EPP provided assistance in preparing a revised mechanism for timely payment of subsidy to DISCOs by amending various rules and procedures, and it assisted in preparation of comments on the summary for Economic Coordination Committee (ECC) submitted by Ministry of Water and Power regarding Rationalization of Power Tariff. The summary was considered by the ECC in its meeting.

During June, EPP assisted with finalizing the tariff differential subsidy allocation for the revised 2014-15 budget and for the next financial year 2015-16; analyzing the funds requirement of CPPA for ensuring un-interrupted power supply at the time of Sehri and Iftar during the Holy Month of Ramadan; and developing the level of tariff differential subsidy for distribution companies after the decision of NEPRA on their Review Petitions. Quarterly activities also included assistance with: reconciling pending claims of tariff differential subsidies submitted by Ministry of Water and Power; providing a summary for the Economic Coordination Committee (ECC) submitted by Ministry of Water and Power regarding incentives for recovery of outstanding amounts and the anti-theft campaign in DISCOs; working out the arrears of tariff subsidy claims of Peshawar Electricity Supply Company (PESCO) for the year 2012-13 and 2013-14; and monitoring the receipt of dividends to be paid by the energy sector companies to the Ministry of Finance before the close of current financial year.

SUPPORT TO MINISTRY OF PETROLEUM AND NATURAL RESOURCES

LNG Procurement

- EPP continued providing support to the GOP team during the Quarter for concluding the LNG Sales Purchase Agreement (SPA) with Qatargas, including meetings with Qatargas in Doha on April 1-2, following which another redraft of the LNG SPA was submitted. EPP provided support to the GOP in finalizing G2G agreement with Qatargas, including the LNG SPA negotiations with Qatargas in Islamabad May 7 and 8.
- The LNG Services Agreement (LSA) Waiver Agreement and Time Charter Party Agreement with Elengy Terminal Pakistan. Ltd. (EETL) for transporting the next four LNG cargoes from Qatar were concluded with support to PSO and Sui Southern Gas Company (SSGC). EPP's team provided further inputs to frame responses to queries raised by bidders on the spot LNG tender. EPP's team supported PSO in the bid review process for spot LNG tender in Karachi from June 15-18, and PSO has now finalized the bid evaluations.
- The GOP team was also supported in finalizing the Floating Storage and Regasification Unit (FSRU) sub-charter agreement between PSO and EETL, tripartite agreement among PSO, SSGC, and SNGPL inter-linked with Qatargas SPA, and LNG Services Agreement (LSA) waiver agreement among PSO, SSGC, and EETL to cover the terminal commissioning process vis-à-vis the provisions in the LSA, as well as for transporting four LNG cargoes from Qatar on an FOB basis in the interim period.
- The tender documents package (bid document, MSPA, Confirmation Notices for each of the four cargoes, Standby Letter of Credit (SBLC) and bank guarantee, and confidentiality

agreement) were reviewed and finalized for procuring spot LNG cargoes by PSO. The tender was issued by PSO May 13.

- EPP's LNG Advisor participated in the Bidders' Conference held in Karachi on May 25 to support the GOP in answering bidders' queries on the spot LNG tender issued by PSO.
- EPP submitted the amended Master Sales Purchase Agreement (MSPA) to PSO during June revised in light of the bidders' comments received in response to the recently published tender for procuring spot LNG cargoes.

Support to Port Qasim Authority

- EPP's LNG Advisors held a series of meetings during the Quarter with EETL to review issues arising out of various gap studies conducted for LNG terminal design and quality. After submission of the pending required documentation by EETL, the EPP team resumed its review for closing of issues arising out the studies.
- EPP sponsored the four-day visit of the second batch of two PQA pilots to Doha to receive training on Q-Flex maneuvering from Qatargas.
- Work continued on closing of open items under the Action Register prepared by Qatargas. EPP and Director General, Operations, PQA participated in meetings with Qatargas in Doha on April 7-8 to discuss port-related items pertaining to the Qatargas SPA.
- EPP submitted a revised version of the standard operating procedures and Conditions of Use for LNG carriers calling at PQA for inclusion in PQA Port Regulations and Operations Manual of EETL, which was forwarded to PQA and EETL.
- Port Tariff prepared by EPP was approved by PQA Board for one month effective April 16, 2015.
- EPP prepared the draft Security Plan for LNG vessels calling at Port Qasim and EETL, which was shared with PSO, PQA, and EETL. The Security Risk Assessment by Qatar Gas conducted during for first week of May 2015 at Port Qasim was declared acceptable by Qatargas.
- A draft gazette notification for port tariff for LNG carriers was also prepared and submitted to PQA. PQA approved the port tariff model for LNG vessels in a meeting held May 15. Port tariff is subject to further approval by Ministry of Ports and Shipping.
- A revised Standard Operating Procedures (including Conditions of Use and Marine Services Certificate) for LNG vessels calling at Port Qasim to PQA was prepared and forwarded to Qatargas and uploaded on PQA's website. These were further revised in light of additional comments provided by Qatargas and forwarded to PQA, and have been provided to PSO for transmission to Qatargas.
- PQA Direct Agreement was signed by PQA and forwarded to SSGC and EETL for their respective signatures.
- During June, the final revised version of Terminal Regulations prepared by EETL was reviewed and forwarded to PQA for acceptance.
- EPP team prepared the draft response for consideration of PQA regarding the recent ECC decision on waiver to follow Society of International Gas Terminals and Tankers Association (SIGTTO) guidelines for LNG carriers calling at Port Qasim.



Shale Gas

- Discussions were held in May with the two short-listed bidders on proposals submitted against the Request for Proposal for shale gas policy and regulatory framework formulation.
- A review meeting with EPP partners was held May 27 to discuss infrastructure, technology, and costs for Shale Gas production. Necessary directions were given regarding changes in the proposed financial model and the technical assumptions to be made to this effect. The Draft report on Resource Assessment (Milestone - 4A) was completed during June.
- Various meetings were held during June with consultants to discuss the possibility of re-visiting the provisions of infrastructure, technology, and costs for shale gas production (Milestones 5, 6, and 7) and to provide proper pre-policy guidelines. Consultant's proposal for elaboration of Milestone-6 was finalized and the request for USAID consent is in process.

Upstream Oil and Gas

- The process of finalization of Supplemental Agreements with Exploration and Production (E&P) companies commenced during the Quarter. The progress on execution of Supplemental Agreements was reviewed in meetings held with USAID in April. The majority of the conversions entailing no legal issues have been executed. Remaining applications that are legally problematic are under discussion with the E&P companies and their legal counsels for resolution. After discussions with DGPC in June, it was agreed to take up the matter with E&P companies to expedite the submission of draft Supplemental Agreements. Subsequent to these discussions, a draft letter was submitted to DGPC requesting the E&P companies to expedite the submission of draft Supplemental Agreements.
- DGPC and the EPP team held a meeting with the Ministry of Law officials on April 8 to discuss various options to extend or re-grant a particular mining lease without interrupting significant gas production.
- A presentation on draft standard operating procedures for DGPC office was made to DGPC on April 23 and these procedures are being finalized on the basis of comments offered by DGPC staff. The input from Pakistan Petroleum Exploration and Production Companies Associated (PPEPCA) was also being obtained.
- A presentation on the technical study for standardization of oil and gas reserves was made to DGPC on April 23; it was decided to seek the input of PPEPCA on the matter. Meetings were held in May with PPEPCA seeking input on draft standard operating procedures for DGPC and standardization of oil and gas reserves.
- Model Supplemental Agreement for incentive for 10% incremental production under the 2012 Exploration and Production Policy in respect of tight gas, low BTU gas, and marginal/stranded gas was prepared reviewed.
- EPP participated in a meeting with an E&P company in Karachi May 11 to discuss the formulation of guidance document for shale gas.
- A presentation was made to DGPC May 13 for formulation of rules and model supplemental agreement for legally granting rights and incorporation of incentives for tight gas, low BTU gas pricing policies, and marginal/stranded gas-fields guidelines.
- A meeting was held with PPEPCA May 13 to discuss the financial model prepared for approval of field development plans by DGPC. This would facilitate approval process of field development plans.
- A presentation was made to DGPC May 21 for Deliverable Number D-3 concerning the proposed changes in the existing E&P policies.
- GOP has extended the term of a major mining lease by one year. In the meantime, a way forward for further extension of the lease will be considered and necessary recommendations will be made to the GOP.
- Secretary MPNR was briefed on the status of the support being provided to MPNR in a meeting held on June 10. A copy of the proposal regarding rationalization of producer prices was also handed over to the Secretary for decision on whether the proposed study desired by the Minister MPNR is to be undertaken.

- Legal opinion on acquisition of shares of a local E&P company was provided to DGPC.
- Materials regarding amendments in rules and agreements in respect of tight gas policy, low BTU gas price policy, and marginal/stranded gas field guidelines were finalized.
- Amendments in the E&P Rules for 1986, 2001, 2009, and 2013 were finalized and sent for DGPC input.

COMPONENT 3: NEW PROJECTS, PLANNING, AND DEVELOPMENT

KURRAM TANGI/KAITU WEIR PROJECT

Evaluation of previously received bids for construction of the Kaitu Weir feeder tunnel linking the Kaitu River to Kurram Tangi Reservoir, two power houses with installed capacity of 18.4 MW, two irrigation canals (Spaira Ragha and Sheratella), and associated structures remained with Project Consultant Mott Macdonald Pakistan (MMP) and Central Contract Cell of WAPDA. The technical proposal was opened and evaluated by WAPDA consultants (MMP) and reviewed by Central Contract Cell of WAPDA. After discussion of a number of shortcomings in the proposal were discussed with bidder, WAPDA finalized and approved the bid from the consortium led by Frontier Works Organization (FWO) and Descon.

The Financial Proposal provided in the separate second envelop was opened in June and is under negotiation with the bidder. The successful contractor is expected to mobilize in July 2015.

WAPDA, FATA, USAID, and EPP held meetings on May 11 and 20, 2015 to finalize the project cost, land acquisition process, and resettlement action plan in line with guidelines indicated by USAID. WAPDA General Manager North and his Project Director for Kaitu Weir, MMP Consultants, Assistant Political Agent of FATA, Deputy Director, USAID/Peshawar Office, Program Director, USAID/Islamabad, USAID Mission (A) Environmental Officer, representative from USAID Finance Office attended meetings. Many issues were discussed and information deliverables were identified.

EPP, USAID, WAPDA, and Federally Administered Tribal Areas' (FATA) Political Agent held meetings on June 20, 2015 to discuss the land acquisition process and issues related to the Resettlement Action Plan in line with USAID funding requirements. WAPDA General Manager North, Project Director Kaitu Weir, MMP Consultants, Assistant Political Agent of FATA, Deputy Director USAID Peshawar Office, Program Director USAID Islamabad, USAID Mission (A) Environmental Officer, and a representative from USAID Finance Office attended the meetings. EPP continued efforts to collect the documents related to the land acquisition process and the Resettlement Action Plan.

USAID and EPP are working with WAPDA to identify eligible costs of works and to finalize the Activity Agreement. Milestone dates for funding disbursement and associated payment schedule for the proposed \$81 million USAID funding is under preparation for the PIL. The Planning Commission PC-I of the project amounting to \$126 million has been approved by the GOP. It consists of \$81 million for Kaitu Weir and associated structure and command area development to be financed by USAID and \$45 million in loans under discussion by the Economic Affairs Division (EAD) with the Italian Government.

GOLEN GOL PROJECT

Based on the Golan Gol Project Due Diligence Report submitted by EPP in January 2015, USAID has indicated that \$36 million in WAPDA funding for civil works for the power house and power house equipment is available. The total cost for these items is \$75.5 million; the Kuwait Fund is providing a loan of \$37 million for construction of the power plant but a shortfall of almost \$38.5 million remains.

The Saudi fund is providing a soft loan of almost \$97 million for all the civil works and structures at Intake and Tunnel, while the OPEC Fund is lending \$30 million for transmission lines and grid stations. Still there is funding gap of \$71 million in overall project cost.

EPP is finalizing line items to be included for the \$36 million USAID funding and a disbursement mechanism and schedule of payment in line with already available Kuwait Funding. The Project, which is now 38% complete, is expected to be completed by August 2017 and provide 438 GWh of low cost energy annually to the National Grid. Revenue from Golen Gol will be over \$33 million a year and this power will replace electricity production from thermal plants using costly imported fuel oil of about \$65 million per annum.

EPP continues to monitor the project activities and notes that owing to winter snows there was not much construction work at site. EPP teams visited the project site for the second time during April and Peshawar General Manager's office and have collected all required information for Due Diligence Step 2.

The project will meet the power demand of the Chitral district, stimulate local businesses, provide job opportunities to locals, and develop cottage industry in the remote areas. Golen Gol transmission line, which has capacity to carry almost 300 MVA of power, will not only replace the existing 33 kV transmission line connection that sends a mere 5 MW to Chitral but also facilitate dispersal of power from planned small and medium power projects located in Chital to the National Grid. The construction of Golen Gol project will neither displace villagers nor adversely impact on environment.



Golen Gol Project, Chitral

COMPONENT 4: NEW ACTIVITIES

PESHAWAR ELECTRIC SUPPLY COMPANY

To date, 505.2 MW of transmission throughput capacity have been added to Peshawar Electricity Supply Company's (PESCO) network as a result of EPP's assistance.

Capacitor Bank. The capacitor bank was commissioned at TALL 132kV grid station in April. The throughput capacity has been enhanced by 12 MW and losses have been reduced by 2 MW.

Power Transformer Program. Two hundred-thirteen samples of transformer oil were tested with the results showing potential transformer damage, which increases the likelihood of an outage that can cause loss of customer loads. Many of PESCO's transformers require oil purification, and EPP is in the process of procuring two oil filtration plants for PESCO's operations and maintenance staff. The plants are expected to arrive by end of July. Two new 40 MVA power transformers have arrived at PESCO sites and are scheduled to be commissioned during first week of August.

Bucket Trucks. The registration process is underway for the four telescopic bucket trucks delivered to PESCO warehouse on April 28, 2015. This will help PESCO in effective and efficient maintenance of their facilities.



Newly Procured Bucket Truck for PESCO

Technical Audits. Individual technical audit reports have been sent to PESCO. The reports highlight shortcomings and bottlenecks found and recommend preventive and corrective measures. The final summary report was delivered to PESCO's CEO on June 26.

Transmission and Grid Equipment. The Purchase Order has been awarded to M/s. Ikram Corporation for supply of transmission grid equipment. Some of the tools (17/37) have already been delivered; the contractor is to deliver remaining equipment by mid-July 2015. The remaining items need customs clearance for delivery by the vendor.

NATIONAL TRANSMISSION AND DESPATCH CENTRE

Technical Audits. Technical audits and reports for all 45 grid stations were compiled during April and May. A hardcopy of the report and a disk with all the backup data for the original 39 stations have been provided to the Managing Director. The reports propose steps necessary for carrying out both preventive and corrective maintenance and also recommend infrastructure upgrades and augmentation where necessary. The Final Report was delivered to the Managing Director on June 30.

Real Time Digital Simulator. The purchase order was awarded to M/s. OPAL-RT in April; Factory Acceptance Tests were successfully conducted during May, and the simulator is due to arrive in first week of July.

Hardware and Software for NTDC Design Department. The vendor has delivered all hardware for NTDC's Design Department. Software and training for NTDC's Design Department

took place from April 20 through June 19, 2015. The new hardware ensures capacity building of the NTDC IT department and will make their communication system efficient, productive, and reliable.

Advisory Services to NPCC. EPP experts, at the request of the NTDC Board of Directors, are working at NPCC advising the General Manager on Grid Code compliance, Grid Code enforcement, and proper operations. EPP experts are working with NPCC authorities on integrating generating units with new SCADA system.

Live-Line Maintenance

- Live-Line refresher course for IESCO linemen was completed on April 3, 2015.
- The live-line refresher course for PESCO linemen was conducted from April 13 through May 8.
- The live-line refresher course for FESCO linemen started on May 26 and completed June 19.
- The live-line training for twenty linemen from SEPCO and MEPCO started on February 2, 2015 and was completed on May 15.
- The live-line training for twenty linemen from LESCO and QESCO started on May 18 and will be completed on October 02, 2015.

NTDC System Studies. The Purchase Order was executed and work begun on integration of intermittent renewable resources with the national grid; this study is expected to be completed in mid-September 2015.

Auto-Transformer Program. Factory Acceptance testing of two JHSP 250MVA, 220/132kV Auto-Transformers was successfully carried out during May, and the Auto-transformers were shipped during June and arrived at Karachi Port. Delivery at the site is expected by the end of July 2015. The Fire Protection System has been shipped by M/s. Xuming with delivery expected in July 2015. Circuit breakers, conductors, connectors, and other ancillaries are expected to be delivered in July 2015.



PROGRAM SUPPORT ACTIVITIES

CAPACITY BUILDING

NTDC Exchange. The EPP completed the three executive exchange visits for NTDC on April 3, 2015. The EPP requested all participants to prepare a white paper based on their findings from their United States visit, including action plans, developments, and future plans.

Live-Line Maintenance. The EPP's Live-Line Maintenance Batch II training for MEPCO and SEPCO was completed in May. EPP completed the first of five refresher courses at IESCO on April 3 and started the second of the five refresher courses at PESCO on April 13. EPP met with the live-line maintenance crew to conduct a monitoring and evaluation session with the participants from Faisalabad Electric Supply Company (FESCO) on June 19 and compiled a report based on the feedback given by the engineers and linemen. A break was observed for Ramadan for Quetta Electricity Supply Company (QESCO) and Lahore Electricity Supply Company (LESCO) trainees from June 20 – July 26, 2015. The linemen will resume their training at NTDC Tarbela Training Center in the last week of July 2015. To date, EPP has completed the three of the five refresher courses at IESCO, PESCO and FESCO; the fourth refresher course at GEPCO to commence in July, 2015. All Live-Line Maintenance programs will be completed by October 2015.

GENCO O&M Training. The EPP conducted a second round of focus group discussions on April 22 at Jamshoro Power Generation Company Ltd. to monitor the progress made on the assignments and challenges. Participants highlighted the improvements made in the heat-rate testing with respect to shift improvements and timely generation of trouble reports, cooling tower efficiency, and efficient procedures.

HYDRO Operations and Maintenance Training. A Focus Group Discussion was conducted on June 2 at Ghazi Barotha Power Station to monitor the progress made on the techniques learned and challenges highlighted during the post-training interviews. Participants highlighted the improvements made in the optimal operations of the plant where the training was based on different departmental criteria. The discussion session included the participants, senior engineers, and shift engineers. Post-training findings will assist in the planned on-site program scheduled for the fourth quarter.

NTDC Design Center. EPP's Design Center training was completed on June 19 at NTDC, Lahore in 11 different courses, i.e., AutoCAD, PLS – Power, PLS- Tower, PLS – Pole, SAPS, SAGSEC, CAISON, ARCGIS, Bentley STAAD-PRO, Bentley Sub-Station, and MS Project. EPP conducted a monitoring and evaluation session on June 16-17 with the participants to ensure sustainability of the Design Center rehabilitation program. The feedback report will be shared for future improvements.

LNG Business Management Certificate. EPP completed the LNG business management certificate training on June 12 in which EPP hosted 14 participants from OGRA, SSGCL, and PQA in Kuala Lumpur. The program focused on improving SSGCL, PQA, and OGRA's commercial capacity and port operations standards. EPP is planning to host a debriefing and monitoring and evaluation session with all the participants in August 2015.

GENDER ACTIVITIES

Assessment and Strategy. EPP coordinated with USAID/Pakistan's gender specialist and the Energy Office's Assistant COR regarding the gender strategy and assessment. EPP will receive edits and from USAID and meet in-person for next steps prior to the planned public forum.

Increased Female Participation. Twenty-seven percent of trainees at the NTDC exchange visits were female. Between April and June 2015, during the Design Center Training Course at NTDC the following percentage of trainees were female: 36% in AUTOCAD, 21% in PLS-CADD, 23% in PLS-Tower, 20% in PLS-Pole, 20% in SAPS, 37% in SAGSEC, 25% in CAISON, 36% in ARCGIS, 33% in MS Project, and 27% in Bentley Substation. The EPP currently has an 18% female participation rate across all training up from 4% in January 2014.

MONITORING & EVALUATION

Work Plan. USAID approved EPP's revised work plan for FY2015 in April.

NTDC Exchange. The EPP conducted a debriefing session on May 12 with participants of the NTDC Commercial Operations exchange and a focus group discussion session with Grid Operations participants on May 13. Debriefing and focus group discussion reports will be distributed to USAID once concluded. General findings were that the exchanges were very successful and lead to many on-site improvements.

Live-Line Maintenance. The EPP met with Live-Line Maintenance participants for MEPCO and SEPCO on May 15 at NTDC Tarbela and compiled a report based on the feedback given by the principal, trainers, demonstrator, and linemen. EPP started live-line maintenance training for QESCO and LESCO on May 18 with scheduled completion within the first week of October. EPP completed the two of five refresher courses at IESCO and PESCO on May 8. The third refresher course at FESCO started on May 26 for completion before Ramadan.

HYDRO O&M Training. Focus group discussion was conducted on May 15 at Tarbela Power Station to monitor the progress made on the techniques learned and challenges highlighted during the post-training interviews. Participants highlighted the improvements made in the optimal operations of the plant where the categorization is in process based on different departmental criteria. The discussion session included the participants, senior engineers, and shift engineers. Post-training findings will assist in the planned on-site program scheduled for the fourth quarter.

NTDC Design Center: The EPP started Design Center training on April 20 at NTDC, Lahore in five different courses: 45 participants were enrolled in Microsoft Project Management, 29 participants in Bentley, 14 participants in ARC GIS, 39 participants in Power Line Module, and 25 participants in AutoCAD. EPP will monitor all participants and training to ensure sustainability of the Design Center rehabilitation.

LNG Business Management Certificate. EPP arranged visas, travel, and final schedules for the LNG business management certificate training, which will host 14 participants from OGRA, SSGCL, and PQA in Kuala Lumpur starting June 1. The program will focus on improving SSGCL, PQA, and OGRA's commercial capacity and port operations standards.

Post-Training. EPP hosted multiple post-training sessions for participants from Hydro Operations and Maintenance, NTDC exchange visits, and live-line maintenance.

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PROGRESS IN NUMBERS

Table 3 below provides the EPP indicators, targets, and achievements for the reporting Quarter 2015. **Table 4** presents EPP Indicators by component for the Quarter.

Table 3: EPP Indicators and Achievement for the Quarter 2015

Indicator	Unit	LOP Target	Achieved in Q3 FY2015	Total Achieved as of Q3 FY 2015	LOP % Achieved as of Q3 FY2015
I.a: GWh of energy sold	GWh	7880	98.1	9,182	117%
I.1.a: Number of beneficiaries with improved energy services due to United States Government assistance	Individuals	13,624,226	179,172	15,847,956	116%
I.1.b: GWh of energy availability	GWh	7880	98.1	9,182	117%
I.1.c: MW available to meet power sector demand as a result of USG assistance	MW	1,303	14	1,518.2	117%
I.1.1.a: MW of electrical power added or saved as a result of USG improvements	MW	875	2	1,027.2	117%
I.1.1.b: Efficiency of thermal power plant tests completed	No.	3	0	2	67%
I.1.1.c: Number of USG supported installations and operations and maintenance improvements	No.	181	16	166	92%
I.1.1.d: Number of transmission bottlenecks resolved	No.	121	6	122	101%
I.1.4.a: Public and private funds leveraged by the USG for energy infrastructure projects	U.S. \$	193.5 million	120 Million	178.5 Million	92%
I.2.1.a: Number of key policies and regulations in various stages	No.	12	6	32	267%
I.2.2.a: Number of policies following international best practices	No.	6	1	4	67%
I.2.2.b: Number of board recommendations following international best practices	No.	4	2	2	50%
I.2.3.a: Number of best practice-driven systems created, improved, and implemented	No.	10	2	8	80%
I.2.4.b: Number of public forums resulting from USG assistance in which government officials and citizens interact	No.	12	1	6	50%

Table 4: EPP Indicators by Component for the reporting Quarter 2015

Indicator	Unit	Component	LOP Target	Achieved in Q3 FY2015	Total Achieved as of Q3 FY 2015	LOP % Achieved as of Q3 FY2015
I.I.a: Number of beneficiaries with improved energy services due to United States Government assistance	Individuals	Total	13,624,226	179,172	15,847,956	116%
		I-Generation	7,993,106	0	9,382,406	117%
		IV-Transmission Throughput Capacity	5,477,544	153,576	6,283,818	115%
		IV – Transmission Added/Saved	153,576	25,596	181,732	118%
I.I.b: GWh of energy availability	GWh	I & IV	7880	98.1	9,182.1	117%
		I-Generation	4,796	0	5,642.29	118%
		IV-Transmission Throughput Capacity	2999.4	84.09	3,440.92	115%
		IV – Transmission Added/Saved	84	14.01	99.50	118%
I.I.c: MW available to meet power sector demand as a result of USG assistance	MW	I & IV	1,303	14	1,518.2	117%
		I-Generation	863	0	1,013	117%
		IV-Transmission Throughput Capacity	428	12	491	112%
		IV – Transmission Added/Saved	12	2	14.2	118%
I.I.Ia: MW of electrical power added or saved as a result of USG improvements	MW	I & IV	875	2	1027.2	117%
		I-Generation	863	0	1,013	117%
		IV – Transmission Added/Saved	12	2	14.2	118%

ANNEXES

ANNEX I: SUCCESS STORY - POWER STATION REHABILITATION ADDING 90 MEGAWATTS

Mangla Hydroelectric Power Station, located in the Mirpur District of Azad Kashmir, was designed to produce 1,000 megawatts of electricity from its 10 generating units. However, as a result of nearly 50 years' of wear and tear on equipment that was initially installed in 1967, the plant has been able to produce only 980 megawatts of energy.

Partnering with the government of Pakistan, USAID through the Energy Policy Program (EPP) is rehabilitating the Mangla Power Station. Two out of 10 units are being upgraded with new generating equipment.

Rehabilitating the Mangla Power Project will mitigate Pakistan's energy shortage by adding 90 megawatts to the national grid through the refurbishment and upgrading of units 5 and 6 at the power plant. The generation capacity will increase from 80 to 135 megawatts for unit 5 and from 100 to 135 megawatts for unit 6, bringing the new total to 1070 megawatts. When the Project is fully complete, the plant will be producing 1310 megawatts of power. The Project is also supplying 169 MVA capacity power transformers, as well as supplying, installing, and refurbishing mechanical and electrical equipment, and conducting the necessary civil works.

Increasing available energy supplies is inextricably linked to Pakistan's economic development. Demand for energy increases roughly eight percent per year with extended blackouts throughout the day. USAID works with the government of Pakistan to support high impact projects in new construction and existing energy plant rehabilitation. The Mangla project implementation letter was signed by WAPDA and USAID on March 6, 2014, and \$3 million has been disbursed so far for the Project. Mangla's environmental mitigation and monitoring plan has also been approved.

By upgrading units 5 and 6, Mangla's revenues from electricity sales are expected to be approximately \$60 million per year. The refurbished power plant will produce an additional 90 megawatts a year of capacity, which is enough to supply electricity to an additional 833,580 people. New, modern equipment will ensure the availability of spare parts for preventive maintenance, and it will improve the reliability and availability of this power plant for the next 40 years.

By upgrading units 5 and 6, Mangla's revenue from electricity sales are expected to be approximately \$60 million per year. The refurbished power plant will produce an additional a 90 megawatts a year of capacity, which is enough to supply electricity to an additional 833,580 people.

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