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USAID ENERGY POLICY PROGRAM

MONTHLY PROGRESS REPORT

February 2015



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USAID ENERGY POLICY PROGRAM

MONTHLY PROGRESS REPORT February 2015

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©USAID Energy Policy Program
House 4, Street 88, Sector G-6/3
Ataturk Avenue, Islamabad, Pakistan
Tel: +92 (51) 835 7072, Fax: +92 (51) 835 7071
Email: jhicks@ep-ep.com.pk

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ACRONYMS

AEAI	Advanced Engineering Associates International, Inc.
CFW	Corporate Finance Wing
CPPA	Central Power Purchasing Authority
DGPC	Director General Petroleum Concessions
DISCO	Distribution Company
EETPL	Elengy Terminal Pakistan, Ltd.
EPP	Energy Policy Program
FSRU	Floating Storage and Regasification Unit
G2G	Government-to-Government
GENCO	Generation Company
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
USAID	United States Agency for International Development
WAPDA	Water and Power Development Authority

EXECUTIVE SUMMARY

During this reporting period, the cumulative number of people who have directly benefited from The Energy Policy Program's (EPP's) efforts stands at 15.66 million or 8.7% of the population. At the end of February, EPP's efforts have improved the financial performance of energy sector entities by \$663 million. This represents approximately 7.6% of the 2012 circular debt. As of February 2015, \$151.79 million has been disbursed to Government of Pakistan (GOP) implementing partners, and 1013 MW have been added to Pakistan's national grid.

After ensuring completion of the installation and operation of digital governors at Tarbela Power Station units 1-10, EPP certified the WAPDA claim of \$300,000 and forwarded it to USAID. EPP also inspected other newly arrived equipment to facilitate disbursement of \$3.1 million after the signing of the PIL. At Muzaffargarh Thermal Power Station, EPP reviewed reallocated PIL items with USAID and concurred that the increase in price was justified by the enhanced scope.

EPP updated USAID on the status of the procurements at Mangla Dam, and also advised WAPDA to expedite the procurements to complete the project by December 2017. This project will add 90 MW to the national grid through refurbishment and upgrading. EPP continued its support to Jamshoro Thermal Power Plant in filling of the tariff petition and coordinating with NEPRA. EPP also supervised the heat-rate testing at Guddu Thermal Power Station conducted during February 9-12.

EPP continued to work with the NTDC to finalize the Performance Contract, which was submitted to the MWP and NTDC Boards for their approval. The new Power Purchase Agreement has been completed and forwarded to WAPDA and NTDC for final approval. The GENCO Performance Contract with MWP was reviewed and finalized, and the final Performance Contracts have been sent to the GENCOs for signature. Technical evaluation of proposals for Human Resources consultants for NTDC are being reviewed, and the selected firm is expected to be on board by March 2015.

The EPP team continues to work closely with senior management at NTDC and the NTDC Board to develop the Strategic Plan. In February, the EPP team met with the Board Planning Committee to discuss the Strategic Plan and get feedback on the critical assumptions, challenges, and objectives. The EPP team gathered demand data input for the Long-Range Energy Alternatives Planning (LEAP) System and continued to work with the Ministry of Planning and Development Energy Wing on the implementation of the E-Office system.

Assistance was provided to Corporate Finance Wing of Ministry of Finance in preparation of views and comments on the summary for the Economic Coordination Committee submitted by Ministry of Petroleum and Natural Resources regarding import of LNG through G2G contracts.

EPP continued to support the Ministry of Petroleum and Natural Resources entities in negotiating draft Sales Purchase Agreement terms with Qatargas in Islamabad (Feb. 2-5) and Doha (Feb. 17-18). Following USAID approval, the Full Mission Bridge Simulation study, with additional scope of work as requested by the Port Qasim Authority (PQA), commenced on February 16 at Siptort21 facilities in Madrid, Spain.

EPP has sent its Due Diligence Report on the Golan Gol Project to USAID and awaits further direction. The project is expected to provide 436 GWh of energy each year and by recently revised estimates will cost \$313 million.

All 82 PESCO substations have been audited, and the reports highlight the shortcomings and bottlenecks found and recommend preventive and corrective measures. As a result of the audit, EPP is in the process of procuring two oil filtration plants for PESCO's operations and maintenance staff. Installation and final testing of the capacitor bank along with 132kV circuit breaker at Tall 132kV grid station was completed; associated gains will be reported in March. The repair work at 69% of the tower locations has been completed and the remainder is underway. All 129 cooling fans have been installed and EPP will verify the megawatt calculation, which will be reported in March 2015.

As a result of the recent blackouts, EPP experts, at the request of the NTDC Board of Directors, are working at National Power Control Center advising on Grid Code compliance, Grid Code enforcement, and proper operations. Of the six recently commissioned grid stations, three have been audited, including the Bandala 220kV grid station in February.

The live-line team refurbished hot sticks at Jamshoro 500 kV grid station and Multan 500 kV grid stations, and a demonstration was held in which NTDC's live-line staff were taught how to perform this task. At the end of the session, a hot-stick refurbishment and cleaning kit was handed over to NTDC along with instructional videos. Additional live-line tools were delivered at the end of February and the handover of all equipment to each DISCO will take place after the crew finishes all necessary training. Live-line training for 10 participants each from SEPCO and MEPCO started on February 2 at NTDC Tarbela training center and is scheduled to finish on May 8, 2015.

COMPONENT I: PROJECT MONITORING AND IMPLEMENTATION

As of February, 2015, \$151.79 million has been disbursed to Government of Pakistan (GOP) implementing partners, and 1013 MW have been added to Pakistan's national grid. Results achieved through the successful monitoring and implementation of government to government (G2G) projects are illustrated in **Table I** below:

Table I: Results Achieved through G2G Projects

Projects	USG Funding (\$ Million)	Paid (\$ Million)	Completion Date	MW Gains/Benefits	
				Target	Achieved (Feb. 28, 2015)
Tarbela (Phase I)	\$16.50	\$14.25	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	\$15.31	12/31/14*	475.0 MW	500.0 MW
Gomal Zam	\$45.00	\$45.00	Completed	17.4 MW	17.4 MW
Satpara	\$26.00	\$26.00	Completed	17.6 MW	17.6 MW
Mangla	\$150.00	\$13.00	12/31/2017	90 MW	In Progress
Tarbela (Phase II)	\$25.00	PIL underway	12/31/2016	20 MW	In Progress
Total	\$316.71	\$151.79		973 MW	1013 MW

*GOP request for extension in process for Muzaffargarh.

REHABILITATION OF TARBELA HYDROPOWER PLANT

Phase-I. EPP visited Tarbela power station to physically inspect the working of digital governors at units 1-10 and ensured that the new installed digital governors at all the 10 units are operating satisfactorily. After ensuring completion of their installation and operation, EPP certified the Water and Power Development Authority (WAPDA) claim of \$300,000 forwarded it to United States Agency for International Development (USAID) for reimbursement. These digital governors assist the smooth operation of the power station. EPP advised WAPDA to expedite the procurement of remaining items. EPP also conducted an environmental audit of Tarbela to ensure the environmental compliance of rehabilitation works as per the Environmental Mitigation and Monitoring Plan.



Inspecting the working of Digital Governor Installed at Unit-1

Phase-II. EPP visited Tarbela power station on February 7, 2015 to inspect the equipment (generator surface air coolers for unit 1-4 and 11-14, and static exciter for unit 5 & 6) that had arrived at site and was partially installed. This inspection will help in the fast disbursement of \$3.1 million after the signing of Project Implementation Letter (PIL). During the visit, EPP also observed the damages found by WAPDA engineers during annual inspection in the draft tube of unit-11 through the runner inspection gate. The Chief Engineer informed EPP that the damages will be repaired within the current lean water period and will take about 2 months. EPP also advised WAPDA to expedite the opening of the assignment account in order to meet the conditions set forth in the signed Activity Agreement before any disbursement.



Meeting with Chief Engineer Tarbela Power Station



Inspection Static Exciter System installed at Unit 6 under Tarbela Phase-II

SATPARA MULTIPURPOSE DAM COMPLETION PROJECT (PROJECT COMPLETED)

EPP provided support to USAID/ENR in responding the queries resulting from the Satpara Audit. The audit is being conducted by the Office of Inspector General.

MUZAFFARGARH THERMAL POWER STATION REHABILITATION PROJECT

EPP provided USAID a review on reallocation of the amount of PIL Item-5, Modification of Excitation System, to the budget for PIL Item-33, Distributed Control System for Turbine Governing System and Boiler Turbine Auto Regulation System.

EPP reviewed the Purchase Order for PIL-2 Item-33 and found that the scope of the Purchase Order had been increased compared to the original scope given in the technical specifications Item-33 and also that the procurement was carried out through an international competitive

bidding process following GOP procurement regulations, which ensured competitiveness of price and efficient utilization of funds. Based on that review of the Purchase Order and also keeping in view the enhanced scope, the increase in price for PIL Item-33 was justified. The amendment request is still in process with USAID.



Muzaffargarh Thermal Power Station

JAMSHORO THERMAL POWER STATION REHABILITATION PROJECT

EPP provided support in planning and arranging of the USAID visit to Jamshoro thermal power station. The visit will be conducted early in March.

MANGLA DAM REHABILITATION PROJECT

EPP updated USAID on the status of the procurements and also advised WAPDA to expedite the procurements to complete the project by December 2017. The project will add 90 mw to the national grid through the refurbishment and up-gradation of units 5 and 6 of the power plant.

IMPROVED EFFICIENCY OF THERMAL POWER PLANTS

EPP continue its support to Jamshoro in filling of the tariff petition and coordinating with Jamshoro on the tariff determined by National Electric Power Regulatory Authority (NEPRA). Further, EPP also supervised the heat rate testing at Guddu Thermal Power Station conducted by Pakistan Engineering Services at GT-7, GT-8, and ST-5 during February 9-12. The report is under preparation and will be finalized by the end of March. The effort is been undertaken to support Guddu in revising its tariffs to facilitate sustainable operations.

COMPONENT 2: POLICY AND REFORM

SUPPORT TO MINISTRY OF WATER AND POWER

NTDC Performance Contract. EPP continued to finalize the Performance Contract and held meetings with both Ministry of Water and Power (MWP) and National Transmission and Despatch Company regarding the contract. Based on these meetings, the finalized contract was submitted to the MWP and NTDC Boards for their approval. EPP is awaiting a final approval from both parties and will move forward accordingly.

WAPDA/NTDC Power Purchase Agreement. EPP continued working on the development of a new Power Purchase Agreement (PPA) that would allow for, and facilitate, the transition of THE Central Power Purchasing Authority (CPPA) and the specific payment and settlement issues that need to be removed from the previous PPA. The new PPA, which has been finalized and shared with MWP, has now been forwarded to WAPDA and NTDC for final approval.

GENCO Performance Contract. The EPP team has been working closely with the generating companies (GENCOs) and the GENCO Holding Company to finalize the Performance Contract that is to be signed with MWP. The contract was reviewed and finalized based on the feedback received, and the final Performance Contracts has been sent to the GENCOs for signature.

NPCL Power Purchase Agreement. The EPP team started adapting the Jamshoro Power Company Limited Power Purchase Agreement for the Muzaffargarh Power Plant. EPP will work closely with the key parties involved to ensure that comments and feedback are incorporated.

JPCL Fuel Supply Agreement. The EPP team has been working to develop a Fuel Supply Agreement that will be signed between JPCL and Pakistan State Oil Company (PSO).

Energy Efficiency and Conservation Bill 2014. EPP had previously provided advice on development of the Energy Efficiency Act. MWP has requested EPP to provide comment on this Act before it is put to Parliament for enactment. EPP will advise in the drafting and preparation of this Act moving forward.

Electricity Act 2013. A draft of the Electricity Bill has been prepared by MWP, which is ready to be circulated for stakeholder consultation. This bill is being re-drafted as it was developed on the basis of the 2003 Indian Electricity Act and does not take into account Pakistan's Electricity Sector Roadmap and the differences in existing legislation and institutional capabilities. At the request of MWP, the EPP team is providing assistance for drafting a bill that reflects Pakistan's requirements, legal issues, and energy sector structure.

Circular Debt Paper. The MWP Policy Report recommends a number of measures for solving the problem of circular debt. The EPP team submitted a draft of an internal paper describing what can be immediately done to significantly reduce circular debt and is awaiting feedback from MWP.

SUPPORT TO NATIONAL TRANSMISSION AND DESPATCH COMPANY

NTDC Human Resource Management/Organizational Development Consultant. EPP team followed up with NTDC on the proposals for Human Resources consultants in response to the Request for Proposal (RFP) for Organizational Transformation and Restructuring. The technical proposals are being reviewed by the NTDC Evaluation Committee constituted by the Managing Director. Technical evaluation was completed in February, and it is expected that the selected firm will be on board by March 2015. NTDC shared the RFP with the short-listed firms in December and by February 13, 2015, received the completed bids. Technical evaluation continued throughout February and was completed at the end of the month. The financial proposals were opened during

the month, and NTDC Human Resources Department intends to discuss the outcome with the Human Resources Committee of the Board of Directors. It is expected that the selected firm will be on board by March 2015.

NTDC Strategic Planning. The EPP team continues to work closely with senior management at NTDC and the NTDC Board to develop the Strategic Plan. In February, the EPP team held meetings with the Board Planning Committee to discuss the Strategic Plan and get feedback from management, including the critical assumptions, challenges, and objectives. The importance of establishing a baseline for NTDC's current position was also discussed. The Strategic Plan was updated based on the Planning Committee meetings. EPP also held Strategic Plan meetings in Lahore with NTDC officials to apprise them of the changes in the draft and get their input and feedback. The EPP also held individual meetings with NTDC management, including the newly appointed Managing Director of NTDC. The meetings were held to obtain information from different departments at NTDC and to get feedback on the process thus far. The key departments included IT, Finance, Planning, and CPPA.

SUPPORT TO MINISTRY OF PLANNING AND DEVELOPMENT

Long-Range Energy Alternatives Planning System (LEAP). LEAP will be used as a decision-making tool by the EPP program for policy interventions in the power sector, particularly over the long term. During the month, the EPP team gathered demand data input for the model and worked on development of Pakistan's energy reference system.

Implementation of E-Governance. EPP continued to work with the Energy Wing on the implementation process for the E-Office system. During the month, meetings were held with Director, Development, National Telecommunication Corporation (NTC), Ministry of Information Technology to prepare an implementation plan. The plan will include fiber ring connectivity between the Energy Wing and the Ministry of Information Technology. EPP also participated in the E-Governance Workshop held at the Planning Commission and continued its assessment of hardware for implementation at the Energy Wing.

11th Five-Year Energy Plan 2013-18. This plan presents the forecast for energy consumption and supply for the period 2013-18 and gives a set of recommendations for addressing the key challenges in the sector. Through the development and application of PowerSIM, EPP has made major improvements in the order, consistency, and flow of data used to support Energy Wing recommendations.

SUPPORT TO MINISTRY OF FINANCE

Liquefied Natural Gas (LNG) Import Comments. Assistance was provided to Corporate Finance Wing (CFW) of Ministry of Finance in preparation of their views and comments on the summary for the Economic Coordination Committee submitted by Ministry of Petroleum and Natural Resources (MPNR) regarding import of LNG through G2G contracts.

Equalization Surcharge Tariff. Assistance was provided to CFW in preparation of their views and comments on the summary for the Economic Coordination Committee submitted by MWP regarding amendment of the NEPRA Act to include the collection of the Equalization Surcharge imposed by the government through tariff. The amendment will provide legal protection for the same.

Gas Field Pricing. Assistance was provided to CFW in reviewing and preparation of views and comments on the draft Supplemental Agreement proposed by MPNR regarding revised pricing mechanism for old gas fields.

PESCO Subsidy Claims. Assistance is being provided to CFW in scrutinizing the additional subsidy claims of Peshawar Electricity Supply Company (PESCO) from year 2012 onwards submitted by the MWP; a briefing was also provided to Secretary Finance in this regard.

Neelum Jehlum Hydel. Assistance is being provided to CFW in scrutinizing the additional funds requirement for the Neelum Jehlum Hydel Project submitted by the MWP.

SUPPORT TO MINISTRY OF PETROLEUM AND NATURAL RESOURCES

Liquefied Natural Gas Imports

Liquefied Natural Gas Procurement. The EPP continued to support the GOP entities ((PSO, Interstate Gas System (ISGS), and Sui Southern Gas Company (SSGC)) in negotiating draft Sales Purchase Agreement (SPA) terms with Qatargas in Islamabad (Feb. 2-5) and Doha (Feb. 17-18). Another revised version of the LNG SPA was drafted by EPP with inputs based on discussions held thus far and sent to Qatargas prior to the latest round of negotiations in Doha. EPP continued to support SSGC in finalizing the various Options and Direct Agreements under the LNG Services Agreement (LSA) Conditions Subsequent. The following agreements have now been finalized and are ready for execution:

- Floating Storage and Regasification Unit (FSRU) Charter Direct Agreement
- FSRU Option Agreement
- Fixed Assets Option Agreement

Support to Port Qasim Authority. Following USAID approval, the Full Mission Bridge Simulation study, with additional scope of work as requested by the Port Qasim Authority (PQA), commenced on February 16 at Sipoort21 facilities in Madrid, Spain. EPP provided its comments on the Mooring Study and Hydraulic Study sponsored by Elengy Terminal Pakistan, Ltd. (EETPL), and it also submitted the gap analysis report on LNG terminal compliance with U.S. National Fire Protection Association Code 59-A. An Action Items Register was prepared and circulated among stakeholders by Qatargas. The Register contains a matrix of 91 port-related items needing resolution by the stakeholders including PQA, EWT, and Qatargas. EPP is providing support in closing the items pertaining to PQA.

Shale Gas

Data Collection. Data collection exercise under Component-2 was discussed with Director General Petroleum Concessions (DGPC). Necessary letters were issued to relevant companies and organizations to facilitate the discussion and data collection. Meetings with the service companies and other organizations for data collection exercise under Milestone-5 of Component-2 are in progress.

Resource Report. EPP submitted a brief on interim Milestone-4 report to USAID for information. Testing and evaluation work under Milestone-4A is in progress.

Lower Goru Formation. The DGPC request for additional information regarding potential of individual shale gas units in the Lower Goru formation that are beyond the existing scope of resource assessment work was reviewed and discussed with NuTech. It was proposed that the reply to DGPC state that their proposal is beyond the scope of work and therefore cannot be considered at this stage.

Upstream Oil and Gas

Director General Petroleum Concessions Support. Advisory work on day-to-day issues of DGPC continued. Necessary advice was rendered on various regulatory, commercial, and legal issues.

Model Supplemental Agreements. DGPC submitted the revised Onshore Model Supplemental Agreement for conversion of policies for seeking approval of the Ministries of Law and Finance. The Ministry of Finance sought clarifications on certain provisions of the Agreement from DGPC. Upon DGPC's request, EPP formulated the response to these queries, which has been communicated to

DGPC for further action. DGPC is yet to convene a meeting to discuss the Offshore Model Supplemental Agreement for conversion of policies.

EPP held a review meeting with DGPC on February 17, 2015 at which DGPC raised the issue of finalization of SOPs for the DGPC office. A meeting to further address this issue was scheduled for February 23, 2015.

Implementation Unit. Search for a commercial and a legal consultant is underway. These people will help DGPC process gas policy conversions as a result of the implementation of the approved Model Supplemental Agreement. Applications in response to the RFP have been received and are under evaluation.

COMPONENT 3: NEW PROJECTS, PLANNING, AND DEVELOPMENT

KURRAM TANGI/KAITU WEIR PROJECT

EPP kept USAID regularly updated on activities and progress on the Kaitu Weir Project during the month and assisted USAID Project Manager in moving forward on the Project. USAID is working with WAPDA to identify eligible costs of works and develop project construction schedules to draft a completion milestone and associated payment plan. The drafts of various plans, schedules, and possible payment by USAID against project activity completion stages are under discussion with WAPDA and their consultants, Mott MacDonald of Pakistan. When the schedules are finalized, the next step would be finalizing of an Activity Agreement for signature by USAID and WAPDA following which a PIL will be agreed upon to fund the Project.

GOLEN GOL PROJECT

EPP has sent its Due Diligence Report on Golan Gol Project to USAID and awaits further direction. The project is expected to provide 436 GWh of energy each year and by recently revised estimates will cost \$313 million. \$164 million had been committed in 2008 to the Project by the Saudi, Kuwait and OPEC funds while WAPDA's cost share has grown to \$149 million. Project costs have escalated owing to procedural delays resulting in late payments, and WAPDA is exploring options to arrange \$88 million to complete the project by 2017.

OTHER PROJECTS

On request of USAID, the EPP provided information on rainfall in the area of the Satpara Dam near Skardu in Gilgit-Baltistan.

COMPONENT 4: NEW ACTIVITIES

PESHAWAR ELECTRIC SUPPLY COMPANY

To date, 491 MW of transmission throughput capacity have been added to PESCO's network as a result of EPP's assistance.

Technical Audits. All of the 82 reports have been compiled to date and all substations have been audited. The reports highlight shortcomings and bottlenecks found and recommend preventive and corrective measures. Work is being done on the final summary report.

Power Transformer Program. All 211 samples have been tested and the results determined potential transformer damage, which can lead to an outage and cause unscheduled load-shedding. The results show that 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. EPP has asked PESCO to implement policy changes that will allow PESCO's Grid Systems Operation (GSO) staff to use the oil filtration plant of Grid Systems Construction (GSC) when it is not in use.

Capacitor Bank Rehabilitation. Installation and initial testing of the capacitor bank along with 132kV circuit breaker at Tall 132kV grid station was completed. The final testing and commissioning took place this month. Gains associated with this rehabilitation exercise are being calculated and will be reported next month.

Tower Repair. The repair works at 69% of the tower locations has been completed; the remaining tower repair work is underway.

Transmission and Grid Equipment. The Purchase Order has been awarded to M/s. Ikram Corporation for supply of transmission and grid equipment. Some of the tools have already been delivered; the contractor is to deliver remaining equipment by the end of February 2015.

Cooling Fans. All 129 cooling fans have been installed and EPP will verify the megawatt calculation, which will be reported in March 2015.

NATIONAL TRANSMISSION AND DESPATCH CENTRE

Advisory Services to National Power Control Centre. As a result of the recent blackouts, EPP experts, at the request of the NTDC Board of Directors, are working at National Power Control Center (NPCC) advising the General Manager on Grid Code compliance, Grid Code enforcement, and proper operations.

Concerning operations, load-shed timing was changed to lessen its impact to the system, and Automatic Generation Control was activated to help maintain frequency at 50 Hz. These are significant changes and are part of EPP's contractual terms to provide the required assistance. There are issues concerning lack of maintenance of lines and equipment that proper operation by NPCC will not be able to overcome.

Technical Audits. Thirty-nine audit reports have been compiled from the original scope of work. An additional six grid stations were added and work is in progress to complete their audit reports. These six grid stations were recently commissioned, and three have already been audited, including the Bandala 220kV grid station in February. The reports propose steps necessary for carrying out both preventive and corrective maintenances and also recommend infrastructure upgrades and augmentation where necessary.

Intermittent Renewable Resources Study. The Purchase Order for the intermittent supply report was executed and work began to collect data and background. EPP anticipates completion and delivery of the report in future months.

Real Time Digital Simulator. Purchase Order awarded to M/s. OPAL-RT. Owing to payment issues, the vendor has not started work and progress to be made in future months.

LIVE-LINE MAINTENANCE

Hot Stick Refurbishment. The live-line team refurbished hot sticks at Jamshoro 500 kV grid station and Multan 500 kV grid station. A demonstration session was held in which NTDC's live-line staff were taught how to perform this task. At the end of the session, a hot-stick refurbishment and cleaning kit was handed over to NTDC along with instructional videos. The EPP will continue to teach hot stick refurbishment to all functional live-line crews in Pakistan.

Live-Line Equipment. Additional live-line tools were delivered at the end of February 2015 and the handover of all equipment to each Distribution Company (DISCO) will take place after the crew finishes either the refresher course (IESCO, PESCO, GEPCO, HESCO, FESCO) or the NTDC Tarbela Training Center course (SEPCO, MEPCO, LESCO, QESCO). Some equipment is delayed due to tax exemption and customs duty issues and EPP is working with USAID to resolve these.

Refresher Course. The refresher course is scheduled to start on March 9 for IESCO in Islamabad. All refresher courses will be completed by August 2015.

Live-line Course. Live line training for 10 participants each from SEPCO and MEPCO started on February 2 at NTDC Tarbela training center and is scheduled to finish on May 8, 2015.

PROGRAM SUPPORT ACTIVITIES

COMMUNICATIONS

Communications continued documenting project achievements, developing success stories (see **Annex I** and **Annex II**), and updating relevant Fact Sheets, as well as providing support for publication of several procurement items and job advertisements in local and international newspapers. Compliance of appropriate branding and marking and quality assurance and control of periodical progress and other programmatic reports was ensured. Moreover, the EPP website was revamped in terms of its interface, content, pictures, and updating of factsheets. Preliminary work towards organizing a public forum on hydroelectric generation to be held in Islamabad has also been initiated.

CAPACITY BUILDING

Thermal Operations and Maintenance. The focus group discussion report was shared with USAID in February for their review and comments. The EPP met with CEO Jamshoro to discuss on-site training and visits to IPP's before the end of the contract. The RFP is under development with delivery scheduled in or around June.

Hydro Operations and Maintenance. The EPP met with the Member Power, WAPDA to discuss on-site demonstrations and training for foremen, linemen, and operators of selected hydro power plants. The RFP is under development with delivered scheduled in or around August.

NTDC Exchange. EPP anticipates the final exchange will take place in March and J-I paperwork for nine participants was completed. A final report will be sent to USAID after the completion of all three exchange visits.

Live-line Maintenance. EPP started live-line maintenance training for batch II participants from MEPCO and SEPCO in early February. EPP is planning to kick off the live-line maintenance refresher training for IESCO in March. All live-line maintenance programs will be completed by October.

LNG Business Management Certificate. EPP anticipates MPNR's nominations in early March for the program, which will host 15 participants in Kuala Lumpur in June. The program will focus on improving MPNR, ISGS, PQA, and PSO port and commercial capacity related to LNG import.

Training for Pakistan. EPP shared all the requested reference documents with Training for Pakistan (TFP) for its internship program. EPP facilitated USAID and TFP in obtaining WAPDA cooperation for a Training Needs Assessment of technical training.

GENDER ACTIVITIES

Assessment and Strategy. EPP submitted the Gender Assessment Report in December 2014 and the Gender Strategy Report in February to USAID for their review and comments. The EPP requested review by USAID's gender specialist before proceeding with plans for a stakeholder forum.

Increased Female Participation. EPP is planning to conduct the final exchange visit program for NTDC, by training two female and seven male participants in the third exchange visit program to the United States. The EPP currently has a 22% female participation rate across all training, which is up from 4% in February 2014.

MONITORING AND EVALUATION

Work Plan. EPP revised the FY2015 Work Plan with suggestions from the USAID Energy Office and submitted it for approval.

PakInfo. EPP submitted PakInfo entries for Quarter I - FY2015 in February and received mission approval.

Confidential information redacted

PROCUREMENT AND PURCHASE ORDERS

Item	Achieved or Completed	Targets LOP	% Completion
Procurement contracts (\$ million)	30.28	37.44	80.83

The EPP procurement department completed and issued Purchase Orders amounting to more than \$2.0 million. The EPP also processed the following procurement items:

- Completion of physical stock taking of EPP assets and technical procurement
- Completion of procurement for live-line training for MEPCO and SEPCO
- Completion of procurement process for repair of 150MVA and 160MVA autotransformers
- Additional Scope of Work for Mobile Protection Security Services
- Completion of hiring of hotel accommodations for long-term consultants

The mandatory Inventory Report of the physical check of EPP assets and technical procurements has been completed and handed over to the internal audit department for verification. The final report will be submitted to USAID for approval. To complete this report, EPP's Procurement and Inventory Officer worked in all three offices (Islamabad, Lahore, and Peshawar) and also physically verified all assets in two guesthouses in Islamabad.

Details of other procurements are presented in **Table 3** below.

Table 3: Purchase Orders Issued During February 2015

Sr. No.	Description	Purchase Order Amount (\$)
1.	Live-line Training MEPCO & SEPCO by NTDC	41,515 (NTDC)
2.	Supply, delivery, commissioning, and installation of two 31.5/40MVA Power Transformers and allied equipment on Turnkey basis	1,351,460 (PESCO)
3.	Full Mission Bridge Simulation Study	103,225 (Policy & Reform)
4.	Hardware equipment for NTDC IT department	117,916 (NTDC)
5.	Purchase order issued for supply, delivery, and training of software for NTDC Design Department	442,650 (NTDC)
Total		2,056,766

PROGRESS IN NUMBERS

Table 4 below provides the EPP indicators, targets, and achievements for February 2015. **Table 5** presents EPP Indicators by component for February 2015.

Table 4: EPP Indicators and Achievement for February 2015

Indicator	Unit	LOP Target	Achieved in February 2015	Total Achieved as of February 2015	LOP % Achieved as of February 2015
I.a: GWh of energy sold	GWh	7880	457	9,084	115%
I.1.a: Number of beneficiaries with improved energy services due to United States Government assistance	Individuals	13,624,226	834,430	15,668,784	115%
I.1.b: GWh of energy availability	GWh	7880	457	9,084	115%
I.1.c: MW available to meet power sector demand as a result of USG assistance	MW	1,303	65.2	1,504.2	115%
I.1.1.a: MW of electrical power added or saved as a result of USG improvements	MW	875	2.1	1,025.1	117%
I.1.1.b: Efficiency of thermal power plant tests completed	No.	3	0	2	67%
I.1.1.c: Number of USG supported installations and operations and maintenance improvements	No.	181	20	146	81%
I.1.1.d: Number of transmission bottlenecks resolved	No.	121	20	116	96%
I.1.4.a: Public and private funds leveraged by the USG for energy infrastructure projects	U.S. \$	193.5 million	0	38.5 million	20%
I.2.1.a: Number of key policies and regulations in various stages	No.	12	0	19	158%
I.2.2.a: Number of policies following international best practices	No.	6	0	2	33%
I.2.2.b: Number of board recommendations following international best practices	No.	4	0	0	0%
I.2.3.a: Number of best practice-driven systems created, improved, and implemented	No.	10	0	5	50%
I.2.4.b: Number of public forums resulting from USG assistance in which government officials and citizens interact	No.	12	0	5	42%

Table 5: EPP Indicators by Component February 2015

Indicator	Unit	Component	LOP Target	Achieved in February FY2015	Total Achieved as of February FY 2015	LOP % Achieved as of February FY2015
I.1.a: Number of beneficiaries with improved energy services due to United States Government assistance	Individuals	Total	13,624,226	834,430	15,668,784	115%
		I-Generation	7,993,106	0	9,382,406	117%
		IV-Transmission Throughput Capacity	5,477,544	807,554	5,322,688	97%
		IV – Transmission Added/Saved	153,576	26,876	129,260	84%
I.1.b: GWh of energy availability	GWh	I & IV	7880	457	9,084	115%
		I-Generation	4,796	0	5,642.29	118%
		IV-Transmission Throughput Capacity	2999.4	442	2,914.6	97%
		IV – Transmission Added/Saved	84	15	70.7328	84%
I.1.c: MW available to meet power sector demand as a result of USG assistance	MW	I & IV	1,303	65.2	1,504.1	115%
		I-Generation	863	0	1,013	117%
		IV-Transmission Throughput Capacity	428	63.1	415.9	97%
		IV – Transmission Added/Saved	12	2.1	10.1	84%
I.1.1a: MW of electrical power added or saved as a result of USG improvements	MW	I & IV	875	2.1	1025.2	117%
		I-Generation	863	0	1,013	117%
		IV – Transmission Added/Saved	12	2.1	10.1	84%

ANNEXES

ANNEX I: SUCCESS STORY – PowerSIM AID PAKISTAN’S POWER SECTOR

There is a grave energy supply and delivery problem in Pakistan. Expensive natural gas has been declining as a fuel in power generation and imports have slowed. The impact on the power sector of natural gas availability is substantial but to date there has been no way to easily measure the financial impact.

The USAID Energy Policy Program (EPP) team developed a tool that would attend to these critical needs – the Power Sector Integrated Model, known as PowerSIM, which is a Microsoft Excel-based policy analysis tool. The main purpose of PowerSIM is to help the Government of Pakistan in evaluating policy options and measures aimed at improving the financial efficiency and sustainability of the country’s power sector. It is also being used to address a major problem regarding LNG, for instance, what happens if you allocate LNG to the power sector at different amounts and quantity? The Ministry of Water and Power has used it to demonstrate what happens to the power sector with additional gas supply as the tool allows policy makers to see how small changes impact the overall system such as consumer prices, circular debt, the cost of generation, and fuel use. Currently, EPP is using PowerSIM to develop the Planning Commission’s 11th 5-Year Plan to build financial and supply assumptions.

While developing PowerSIM, EPP carried out training sessions for senior officials and technical staff at the Ministry of Petroleum and Natural Resources and Ministry of Water and Power. A total of 11 participants, including one female official, attended the session.

“Currently, I am dealing with the affairs of finance at the Power Ministry. Through the PowerSIM, I can analyze data, information and statistics provided by NEPRA and other departments”, opines Muhammad Farhan, a Section Officer at the MWP.

PowerSIM is now being used by the Government of Pakistan to forecast the financial impact of improved performance within existing systems such as greater efficiency, power generation and infrastructure additions, fuel substitutions, improved cost recovery, and policy changes. It has facilitated the Ministry of Water and Power and Ministry of Petroleum and Natural Resources to better analyze both energy and cash flow and subsequently make informed decisions. It has further helped assess the impact of policy changes from uniform national tariffs to differential tariffs and the impact of timely fuel payments to Independent Power Producers.

Shabana Kifayat, an accountant at the Ministry of Power & Natural Resources (MNPR) says, “MNPR can use PowerSIM to determine the average gas cost. More importantly, it may determine how much sale prices of different sectors are to be increased and decreased to cover the average gas price/cost”.



Trainees from Ministry of Water and Power after successful completion of the PowerSIM Training

PowerSIM Model Presentation at Planning Commission

ANNEX II: SUCCESS STORY – ENHANCING RELIABILITY OF PESCO’S POWER NETWORK

Delivering reliable electric power to consumers depends to a large extent on the condition of the power plant’s equipment. One of the most critical components of a power system is its power transformers, and their proper functioning is fundamental for delivering power to the substations and utilities. Cooling fans increase the amount of power that a transformer can deliver, enhance its service life, and reduce losses by providing additional cooling of the transformer’s oil. The efficient cooling of power transformers is of paramount importance in the peak summer season when temperatures rise and loads increase.

The USAID Energy Policy Program (EPP) team has been working to improve and upgrade the transmission system of Peshawar Electric Supply Company (PESCO) to reduce transmission losses and improve reliability. As part of this effort, 477 cooling fans were installed on 104 power transformers at 69 of PESCO’s Grid Stations as of February 2015. The newly installed cooling fans and fan motor circuit breakers on the power transformer are helping to recapture 260.5 MWs of transmission throughput capacity on PESCO’s Grid and benefitting 3,333,879 individuals. EPP support to PESCO included coordinating inspection of the cooling fans by EPP’s engineers, attending factory acceptance tests, and conducting onsite inspections of each cooling fan installation. All installation work has been completed in the presence and satisfaction of EPP and PESCO representatives.

EPP is also working toward enhancing power transformer reliability by providing PESCO with transformer oil purification plants. Dirty oil in the transformers can potentially damage the transformers, which can lead to power outages and cause unscheduled load-shedding. Testing of oil quality showed that many of PESCO’s transformers required oil purification. EPP has initiated the procurement of two transformer oil purification plants along with the necessary oil testing equipment at the request of PESCO. The oil purification plants will assist PESCO in adopting efficient transformer maintenance practices and significantly enhance the useful life of the power transformers.

It is intended that the lessons learned at PESCO can be applied to other power distribution companies (DISCOs) in Pakistan to improve operations and increase the amount of power supplied to end-users.

The newly installed cooling fans and fan motor circuit breakers on the power transformer are helping to recapture 260.5 MWs of transmission throughput capacity on PESCO’s Grid and benefitting 3,333,879 individuals.



ANNEX III: LIST OF KEY MEETINGS

Annex Table 6: List of Key Meetings Conducted in February 2015

Meeting with	Date	Location	Purpose	Outcome/Result
Component 1: Project Monitoring & Implementation				
Chief Engineer (Tarbela)	Feb. 7, 2015	Tarbela Hydel Power Station	To discuss the progress on Tarbela Phase I & II and condition precedents of Tarbela Phase II	On condition precedents, WAPDA has opened a separate account for operation and maintenance and opening of an assignment account is in progress. WAPDA was advised to meet the remaining condition at the earliest possible time. WAPDA was advised to expedite the remaining procurements for Tarbela Phase I.
PES, Chief Engineer (Technical Director, Guddu)	Feb. 10, 2015	Guddu Thermal Power Station	To discuss the methodology & testing procedure before the heat-rate testing	Heat-rate test conducted by PES at Guddu and report is under preparation.
Component 2: Policy and Reform				
Mr. Dilbar Ghouri (Company Secretary NTDC)	Feb. 4, 2015	NTDC Office Lahore	The agenda for the meeting was to discuss corporate governance, particularly as it relates to the Strategic Plan.	The Companies Ordinance 1984 and the Corporate Governance Rules 2013 to be reviewed by EPP as they relate to NTDC. Any questions will be forwarded to the Company Secretary for comments.
Mr. Razzaq Cheema (GM GSC)	Feb. 4, 2015	NTDC Office Lahore	The agenda for the meeting was to review the strategic planning process and get feedback on the key issues for the GSC Department.	The Strategic Plan Draft to be reviewed and comments/discussion to be held at next strategic planning meeting.
Mr. Sabzar Khan (GM GSO)	Feb. 4, 2015	NTDC Office Lahore	The agenda for the meeting was to review the strategic planning process and get feedback on the key issues facing the GSO Department.	The Strategic Plan Draft to be reviewed and comments/discussion to be held at next strategic planning meeting.

Meeting with	Date	Location	Purpose	Outcome/Result
NTDC Board Planning Committee and Senior Management	Feb. 5, 2015	NTDC Office Lahore	The agenda for the meeting was to discuss the NTDC Strategic Plan to date and get feedback from Board Planning Committee and NTDC senior management.	The Strategic Plan will be edited to incorporate the comments and feedback from NTDC Board and Senior Management. The revised version will be discussed at the next Planning Committee meeting.
Mr. Nisar Akhtar (GM Projects)	Feb. 6, 2015	NTDC Office Lahore	The agenda for the meeting was to review the strategic planning process and get feedback on the role of the PMU in execution of projects.	Gathered the required information for project development life-cycle. Further required information on projects can be presented as requested by EPP.
Mr. Gulzar Sheikh (HR Director)	Feb. 6, 2015	NTDC Office Lahore	The agenda for the meeting was to review the strategic planning process and get further information on Human Resources (HR) related matters.	HR Director to provide copy of Recruitment Policy. HR Director to provide departmental staff data.
Mr. Mansoor Nisar (Chief Engineer Procurement) CPPA and his team	Feb. 12, 2015	NTDC Office Lahore	The agenda for the meeting was to have an introductory meeting with Chief Engineer, CPPA to discuss the strategic planning process and gather information based on the presentation made by CPPA department to the Board Planning Committee.	Follow-up meetings to be held to discuss CPPA key functioning and issues. Discussion of CPPA role moving forward at next strategic planning meeting
Mr. Farooq Shaukhat (IT Director)	Feb. 12, 2015	NTDC Office Lahore	The agenda for the meeting was to have an introductory meeting with the IT Director to discuss the strategic planning process and gather information on the functioning of the IT Department along with the key challenges.	Follow-up meetings and discussion will be held to develop the IT strategy moving forward. Comments and feedback from meeting to be addressed in Strategic Plan, particularly the current baseline and the challenges moving forward.
Mr. Waseem Saadat (Manager Finance)	Feb. 13, 2015	NTDC Office Lahore	The agenda for the meeting was to have an introductory meeting with the Manager Finance and to gather information on the function of the Finance Department along with the key challenges.	Providing EPP with the financial model developed in-house. Comments and feedback from meeting to be addressed in Strategic Plan.

Meeting with	Date	Location	Purpose	Outcome/Result
Mr. Rehan (GM Planning) and his team	Feb. 13, 2015	NTDC Office Lahore	The agenda for the meeting was to have a discussion on the strategic planning process and discussion of the Expansion Plan template.	EPP to share template on Expansion Plan with Planning Department and to assist in development of Template. EPP to incorporate comments/feedback in Strategic Plan. Discussion of key planning issues at next Strategic Plan meeting.
Mr. Hamid Balghari, Chief Energy Finance & Economics Section and his team	Feb. 18, 2015	Energy Wing, Islamabad	The agenda of the meeting was to discuss improvements in the 5-year plan.	Discussed in detail the possible improvements in the plan.
NTDC Board Planning Committee and Senior Management	Feb. 18, 2015	NTDC Office Lahore	The agenda for the meeting was to discuss the NTDC Strategic Plan to date and get feedback from Board Planning Committee and NTDC senior management.	The Strategic Plan will be edited to incorporate the comments and feedback from NTDC Board and Senior Management. The revised version will be discussed at the next Planning Committee meeting.
Mr. Arshad, MD, NTDC	Feb. 19, 2015	NTDC Office Lahore	The agenda of the meeting was to update the MD about the developments on the Strategic Plan and seek his support for the Strategic Plan process.	The MD assured of his full support for the process and thanked USAID/EPP for their assistance on the Strategic Plan.
Mr. Mansoor Nisar (Chief Engineer Procurement) CPPA and his team	Feb. 19, 2015	NTDC, Lahore	The agenda of the meeting was to clarify certain issues pertaining to CPPA/WPPO, mainly the contracts with GENCOs and IPPs.	CPPA team clarified that the contracts mention what CPPA is doing on behalf of NTDC and normally a Board resolution authorizes CPPA to enter into the contract. A copy of one such contract was provided. CPPA team to work out the details about settlement as to what IPPs/GENCOs is being settled by CPPA.
Syed Shams, Lead ERP advisor, EPP,	Feb. 19, 2015	EPP Office, Lahore	The agenda of the meeting was to learn about the proposed ERP and how it was formulated. This would help in the Strategic Planning process.	ERP advisor updated on the current status of ERP and the challenges.
Mr. Gulzar Shaikh, GM HR	Feb. 19, 2015	NTDC Office Lahore	The agenda was to get details about the staffing of NTDC per department and per cadre.	Obtained the required information.

Meeting with	Date	Location	Purpose	Outcome/Result
NTDC Senior Management	Feb. 20, 2015	PC Hotel, Lahore	The agenda for the meeting was to discuss the Strategic Plan and get input about the strategic objectives.	EPP provided an overview of the Strategic Plan and the changes made during the month, as the last such meeting took place on January 16. Groups were formed based on the expertise in departments for each of the strategic objectives. These groups brainstormed about the initiatives needed to meet the strategic objectives. Each group presented their findings and other participants discussed/gave feedback on the initiatives.
Mission Director USAID, Director Energy Office USAID, EPP, WFW, FGE	Feb. 6, 2015	EPP Office, Islamabad	To present highlights and issues of the LNG procurement process between GOP and Qatargas.	Current status was provided to Mission Director USAID.
MD ISGS, EPP, Granada Group of Companies	Feb. 13, 2015	ISGS Office, Islamabad	To introduce PQA consultant to MD ISGS and discuss LNG procurement status.	MD ISGS suggested the way forward for port and procurement consultants' support.

www.ep-ep.com.pk
info@ep-ep.com.pk