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USAID ENERGY POLICY PROGRAM QUARTERLY PROGRESS REPORT July-September 2015



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USAID ENERGY POLICY PROGRAM

QUARTERLY PROGRESS REPORT July-September 2015

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ACRONYMS

AEAI	Advanced Engineering Associates International, Inc.
CPPA	Central Power Purchasing Authority
DISCO	Distribution Company
DGPC	Director General Petroleum Concessions
EAD	Economic Affairs Division
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
ERP	Enterprise Resource Planning
FARA	Fixed Amount Reimbursement Agreement
FGE	Facts Global Energy
G2G	Government-to-Government
GENCO	Generation Company
GIS	Geographical Information System
GOP	Government of Pakistan
ISGS	Interstate Gas System
JPCL	Jamshoro Power Company Limited
kV	Kilovolts
LNG	Liquefied Natural Gas
MOF	Ministry of Finance
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
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
RTDS	Real Time Digital Simulator
RTPSS	Real Time Power System Simulator
SCADA	System Control and Data Acquisition
SPA	Sales Purchase Agreement
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

This Energy Policy Program (EPP) Quarterly Progress Report to the United States Agency for International Development (USAID) covers the period from July 1 through September 31, 2015. Highlights and achievements during this reporting period are summarized for each of the four program components. To date, a total of 1,013 MW of power has been added to Pakistan's power system as a result of EPP activities, exceeding the program target of 973 MW. During the Quarter, many ongoing activities were completed or neared completion.

Component 1. Project Monitoring and Evaluation. EPP's expert visited Muzaffargarh Power Station to inspect the newly arrived equipment to ensure that it meets the technical specifications given in the PIL and to expedite the installation of the remaining equipment necessary to complete the project by March 2016. EPP also supported Muzaffargarh in getting a tax exemption letter from USAID for equipment worth \$713,000. EPP's team visited Tarbela Power Station site to inspect the on-going installation of the System Control and Data Acquisition (SCADA) system. A visit to Guddu Power Plant was conducted to facilitate the heat-rate tests that will assist Guddu in filing the required tariff petition. EPP supported Guddu in getting a tax exemption letter from USAID for equipment worth \$346,214 to help in expediting the procurement and installation of the remaining equipment. EPP also facilitated WAPDA/Guddu in preparing the quarterly accrual report, which was submitted to USAID. EPP experts monitored the on-going overhauling of unit-I at Jamshoro Power Station, which will add to the unit's sustainability. EPP provided updates to USAID on the procurement of the remaining equipment at Jamshoro to finalize the time extension requested by Jamshoro for completion of the project.

EPP's environmental expert visited Mangla, Jamshoro, and Guddu Power Stations to conduct environmental audits to ensure the implementation of the Environmental Monitoring and Mitigation Plans (EMMP) and subsequently submitted reports to USAID. EPP's environmental expert also visited Tarbela and subsequently submitted the environmental monitoring report to USAID. On request of USAID, EPP provided its assessment on the WAPDA cost estimates for equipment under Tarbela phase II. EPP also provided environment-related lessons learned to USAID based on its environmental compliance monitoring.

Component 2. Policy and Reform. Support to the Ministry of Water and Power (MWP) included drafting replies to Jamshoro Power Company Limited's (JPCL) revised version of the Power Purchase Agreement (PPA). These comments were sent to the MWP, and once a consensus has been developed, EPP will incorporate the necessary amendments. The final version of the executed PPA between JPCL and Central Power Purchasing A-G will be used as a template for other GENCOs. EPP held meetings with MWP and the National Transmission and Despatch Center (NTDC) to move forward on the Connection Agreement for users of the national power grid. A working paper on the Connection Agreement was shared with MWP and NTDC.

EPP seconded staff at the MWP continued development of the database for the Energy Wing that will link all presentations, Word, and pdf files to an index file for access. EPP also provided IT application support at MWP through use of existing software to update the daily power supply demand scenario and shortfall in the power sector. EPP staff participated in the meeting organized by Energy Wing, Planning Commission to discuss steps needed to provide access to the Pakistan Bureau of Statistics' Geographical Information System (GIS) in order to use the GIS services for project planning purposes.

Assistance was provided to Ministry of Finance (MOF) Corporate Finance Wing in negotiating the loan of Rs.15 billion with the consortium of local banks for partial financing of the North-South Gas Pipeline to be used for imported RLNG. EPP assisted in preparation of views and comments on the draft summary for the Economic Coordinating Committee (ECC) submitted by Ministry of Petroleum and Natural Resources for allocation of natural gas to the Guddu Power Plant. EPP assisted in preparation of views and comments on the proposed Policy for Development of the Mega Hydel Project submitted by Ministry of Water and Power.

EPP assisted with finalizing the term sheet submitted by the consortium of local banks for the partial financing amounting to Rs. 30 billion for the Dasu Hydro Project. EPP assisted Corporate Finance Wing in preparing comments on the proposal regarding deregulation of CNG prices for end-consumers. The Senior Joint Secretary Corporate Finance was briefed regarding the proposal of the Khyber Pakhtunkhwa Government for an increase in net hydel profit.

At the Ministry of Petroleum and Natural Resources (MPNR), EPP worked with consultants to submit to Pakistan State Oil Company (PSO) the updated short-term Master Sales Purchase Agreement (MSPA). Support to PSO continued related to Qatargas LNG Sales Purchase Agreement (SPA) regarding the utilization of conventional LNG vessels for delivery of LNG instead of larger Q-flex vessels. EPP support to Port Qasim Authority (PQA) included developing an updated version of standard operating procedures for LNG carriers calling at Port Qasim. Several reports regarding shale gas were finalized and submitted to DGPC and USIAD.

Component 3. New Projects Development. Evaluation of the technical and financial proposals received for construction of the Kaitu Weir and Associated Structures was completed. The bidder's proposed cost was much higher than the estimated price, and WAPDA is obtaining the Planning Commission's opinion regarding the offered price. The Planning Commission PC-I for the project amounting to \$126 million had been approved by the GOP with \$79 million for Kaitu Weir and Associated Structures and \$47 million for Command Area Development. Milestone dates for funding disbursement and associated payment schedule for the proposed \$81 million USAID funding will be finalized when the contract is awarded. Kaitu Weir and Associated Structures will be constructed by WAPDA, whereas the Command Area Development works will be executed by the Government of the Federally Administered Tribal Areas.

The EPP team submitted an initial report based on their visit to Golen Gol Hydro Power Project September 2-6, 2015 to assess the impact of recent floods as well as physical progress and other issues. USAID has indicated \$36 million funding to WAPDA for the works related to the Golen Gol power house electrical and mechanical equipment; the total cost for the contract is \$ 75.5 million with the Kuwait Fund providing a \$37 million loan. The Saudi Development Fund is providing a soft loan of \$97 million for civil structures and the OPEC Development Fund is providing \$30 million for transmission lines and grid stations.

Component 4. New Activities. To date, 533.2 MW of transmission throughput capacity have been added to PESCO and NTDC's network as a result of EPP's assistance. The crane-mounted trucks arrived at Port of Karachi and the exemption for the cranes has been granted; they are expected to clear customs October 1, 2015. The exemption for the trucks is still pending following which they will be handed over to PESCO. The task is expected to be completed by the end of October. Two 40 MVA power transformers were installed and commissioned at the 132 kV Chakdara and Peshawar Industrial Grid Stations adding 28 MVA of throughput capacity to PESCO's network. EPP is in the process of procuring two oil filtration plants for PESCO's operations and

maintenance staff. The exemption for these items was re-called by Economic Affairs Division (EAD) and is pending. The Factory Acceptance Tests for three new 40 MVA power transformers were scheduled for October 6, 2015 with delivery at site scheduled on October 15, 2015. Registration of the bucket trucks has been completed.

The draft Activity Agreement of the Power Transmission System for Wind Projects in Jhimpir was reviewed by NTDC and their comments received. It is under review by USAID and the PIL is being prepared. The purchase order has been executed and work begun on integration of intermittent renewable resources with national grid. The factory acceptance test of all grid system operations equipment was successfully carried out during September, and the equipment is expected to arrive at port by mid-October.

The Real Time Power System Simulator (RTPSS) equipment was delivered at NTDC Planning Office, and installation and commissioning are expected to be complete by October 2, 2015 with training starting October 5. Two JHSP 250MVA, 220/132kV Auto-Transformers were delivered at Mardan. The installation and commissioning will take place during the approved outage starting October 1, 2015. Circuit breakers for Mardan transformer project have been held in Customs waiting on an exemption certificate from EAD. These circuit breakers are expected to be delivered by the end of October. Repair work on 150 MVA and 160 MVA transformers has been completed, and factory acceptance tests of both transformers are to be completed by the end of October. All live-line training for 20 linemen from LESCO and QESCO was completed on September 18, 2015 and the four-week live-line refresher course of GEPCO was complete on September 4, 2015. EPP handed over a complete set of tools, trailers, and vehicles to SEPCO, MEPCO, LESCO, and QESCO.

Acknowledgement Letters: As of September 2015, EPP has obtained acknowledgement letters from the following organizations and stakeholders for its accomplished activities:

- Central Power Generation Company, Ltd. (CPGCL)
- Northern Power Generation Company, Ltd. (NPGCL)
- Jamshoro Power Company Limited (JPGCL)
- Gomal Zam Multipurpose Dam Project
- Satpara Multipurpose Dam Project
- Tarbela Hydropower Plant Rehabilitation Project
- Planning Commission
- Ministry of Finance
- Interstate Gas System (ISGS)
- Port Qasim Authority (PQA)
- Peshawar Electric Supply Company (PESCO)
- National Transmission and Dispatch Company (NTDC)
- Faisalabad Electric Supply Company (FESCO)
- Islamabad Electricity Supply Company (IESCO)
- Gujranwala Electric Power Company (GEPCO)
- Multan Electric Power Company (MEPCO)

COMPONENT I: PROJECT MONITORING AND IMPLEMENTATION

During the reporting Quarter (July – September) 2015, EPP’s expert visited Muzaffargarh Power Station to inspect the arrived equipment under Project Implementation Letter (PIL) Item #26: Hydraulic Coupling of Boiler Feed Water Pumps. The inspection was carried out to ensure that the arrived equipment is as per the technical specifications given in the PIL.

EPP environmental expert visited Mangla, Jamshoro, and Guddu Power Stations to conduct environmental audits in order to ensure the implementation of Environmental Monitoring and Mitigation Plan (EMMP) and subsequently submitted reports to USAID.

EPP facilitated the independent engineering firm (PES) to conduct National Electric Power Regulatory Authority (NEPRA)-compliant Heat Rate Tests at the combined cycle units (GT-7, GT-8, and ST-5) of Guddu Power Plant. The subsequent heat rate test report will help Guddu in filling of the required tariff petition.

EPP also facilitated the Water and Power Development Authority (WAPDA) and the generating companies (GENCOs) in preparing the quarterly accrual report, which was submitted to USAID.

Table I below summarizes the results achieved through Government to Government (G2G) projects during July-September 2015.

Table I: Quarterly Results Achieved through G2G Projects

Projects	USG Funding (\$ Million)	Disbursed (\$ Million)	Completion Date	MW Gains/Benefits	
				Target	Achieved (August 28, 2015)
Tarbela (Phase-I)	16.50	15.55	12/31/15	128.0 MW	128.0 MW
Jamshoro	19.32	19.32	6/30/16	150.0 MW	270.0 MW
Guddu	19.12	18.91	12/31/15	75.0 MW	80.0 MW
Muzaffargarh	15.77	15.71	3/31/16	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 team visited Tarbela Power Station site to inspect the on-going installation of the System Control and Data Acquisition (SCADA) system. The installation of the SCADA system will add to the reliability of the power plant operations. The EPP team also met WAPDA officials to expedite the procurement of equipment under the Tarbela Rehabilitation Project.

EPP's environmental expert visited site and subsequently submitted the environmental monitoring report to USAID. The visit was conducted to ensure that the rehabilitation works are in compliance with the EMMP. EPP also provided USAID with detailed quarterly financial projections along with project briefer. The projections will help USAID in forecasting the expected disbursements.

Phase-II. On request of USAID, EPP provided its assessment on the WAPDA cost estimates for equipment under Tarbela phase II. The project will add 20 MW to the national grid and add to the sustainability of the power plant operations. EPP also provided USAID with detailed quarterly financial projections along with a project briefer. The projections will help USAID in forecasting the expected disbursements.



MANGLA DAM REHABILITATION PROJECT

During this Quarter, EPP's environmental experts visited the site to ensure that the rehabilitation works are in compliance with the EMMP. EPP also provided USAID the updated progress of the equipment under the Mangla project and answered queries related to the progress. The project will add 90 MW to the national grid.

EPP submitted the Environmental Monitoring and Audit report to USAID. The audit was conducted to ensure the implementation of EMMP at Mangla. EPP also facilitated WAPDA/Mangla in preparing the quarterly accrual report, which was submitted to USAID.

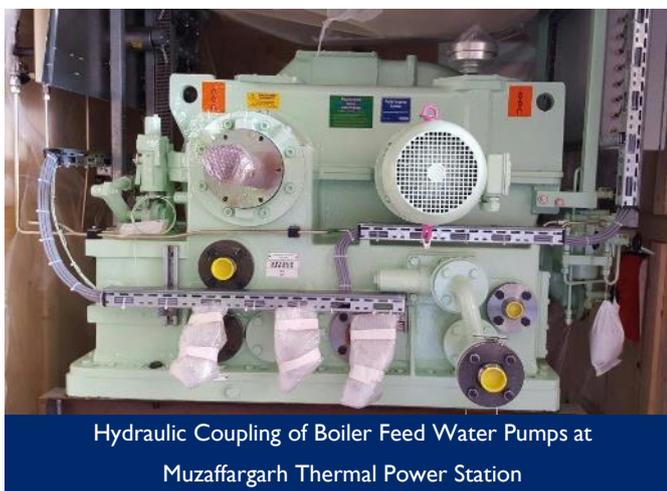


MUZAFFARGARH THERMAL POWER STATION REHABILITATION PROJECT

During the Quarter EPP, experts visited Muzaffargarh site to expedite the installation of the remaining equipment necessary to complete the project by March 2016. EPP also supported Muzaffargarh in getting a tax exemption letter from USAID for equipment worth \$713,000. This will help in expediting the procurement and installation of the remaining equipment. EPP also provided USAID with detailed quarterly financial projections along with a project briefer. The projections will help USAID in forecasting the expected disbursements.

The expert team inspected the arrived equipment under PIL Item #26: Hydraulic Coupling of Boiler Feed Water Pumps. The inspection was carried out to ensure that the arrived equipment is as per the technical specifications given in the PIL.

EPP also facilitated Muzaffargarh in preparing the quarterly accrual report, which was submitted to USAID.



Hydraulic Coupling of Boiler Feed Water Pumps at Muzaffargarh Thermal Power Station

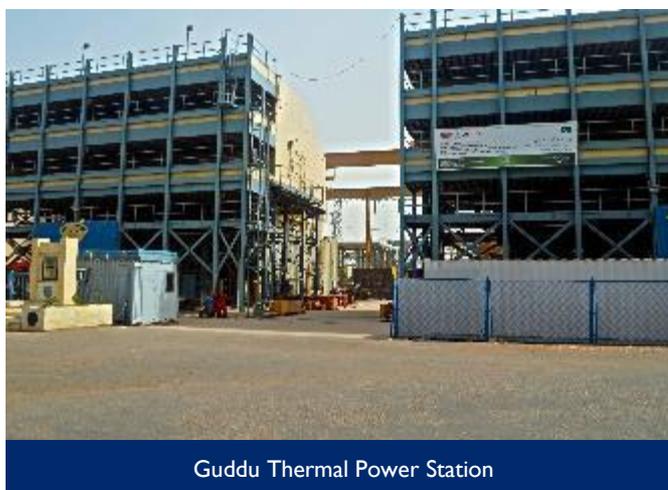
GUDDU THERMAL POWER STATION REHABILITATION PROJECT

On request of USAID, EPP provided environment-related lessons learned at Guddu Thermal Power Station to USAID based on EPP's environmental compliance monitoring.

During the Quarter EPP, supported Guddu in getting a tax exemption letter from USAID for equipment worth \$346,214. This will help in expediting the procurement and installation of the remaining equipment. EPP also provided USAID with detailed quarterly financial projections along with project briefer. The projections will help USAID in forecasting the expected disbursements.

EPP submitted the Environmental Monitoring and Audit report to USAID. The audit was conducted to ensure the implementation of EMMP at Guddu. EPP also facilitated WAPDA/Guddu in preparing the quarterly accrual report, which was submitted to USAID.

Subsequent to Guddu's request for a time extension, EPP provided USAID with the status of the remaining procurements and also its assessment and recommendation on the Guddu time extension request. The remaining items will enhance the reliability of the power plants.



Guddu Thermal Power Station

JAMSHORO THERMAL POWER STATION REHABILITATION PROJECT

During the Quarter EPP, provided updates to USAID on the procurement of the remaining equipment. This helped in finalizing the time extension request made by Jamshoro to complete the project. The remaining equipment will add to the reliability of the power plant. EPP also provided its assessment and recommendation on Muzaffargarh time extension request.

EPP's environmental expert visited the power station to ensure that the rehabilitation works are in compliance with the Government of Pakistan (GOP) and United States Government (USG) regulations as recommended in the approved EMMP. The report will be submitted to USAID early in October. EPP also provided environment-related lessons learned to USAID based on its environmental compliance monitoring.

EPP experts monitored the on-going overhauling of unit-I. This overhauling will add to the sustainability of unit-I at the Jamshoro Power Plant.

EPP submitted the Environmental Monitoring and Audit Report to USAID. The audit was conducted to ensure the implementation of EMMP at Jamshoro and Guddu. EPP also facilitated Jamshoro in preparing the quarterly accrual report and submitted to USAID.



Over-Hauling of Unit-I at Jamshoro Thermal Power Station

COMPONENT 2: POLICY AND REFORM

SUPPORT TO MINISTRY OF WATER AND POWER

Power Purchase Agreements

During the Quarter, EPP drafted replies to Jamshoro Power Company Limited's (JPCL) revised version of the Power Purchase Agreement (PPA) that had been forwarded to EPP. JPCL had raised issues regarding capacity payments, heat rate testing, and liquidated damages, which EPP addressed in replies based on reviews by EPP technical experts as well as its legal expert. These comments have been sent to the Ministry of Water and Power (MWP), and once a consensus on the approach has been developed, EPP will incorporate the necessary amendments.

EPP followed up with the Joint Secretary, MWP on stakeholders' comments on the revised draft PPA, which had been submitted to MWP and by the Ministry to the GENCOs. The final version of the executed Power Purchase Agreement between JPCL and Central Power Purchasing A-G was forwarded to EPP by the Joint Secretary, Power. The final PPA largely draws upon the draft of the bifurcated PPA developed by EPP with changes incorporated as per meetings between JPCL and MWP. This PPA will be used as a template for other GENCOs.

Connection Agreement

During the Quarter, EPP worked on the Connection Agreement to be executed between users of the grid, including generators, BPC, and DISCOs, and National Transmission and Despatch Company (NTDC). EPP held meetings with MWP, NTDC, and EPP legal consultants (CLM) to move forward on the Connection Agreement. A working paper on the Connection Agreement was shared with MWP and NTDC to get their feedback on the conceptualization and outline proposed by EPP. NTDC's lawyer discussed current status of the power sector reforms and regulatory compliance with respect to the Connection Agreement. CLM has provided EPP with the first drafts of three separate Connection Agreements. After completion of EPP's internal review of these drafts, it will send comments to CLM for incorporation in subsequent drafts.

SUPPORT TO NATIONAL TRANSMISSION AND DESPATCH COMPANY

NTDC ERP Solution

EPP submitted a report on August 12, 2015 to the NTDC Chairman of the Board on the results of the EPP review of NTDC PC-I for the implementation of an Enterprise Resource Planning (ERP) System. The report included recommendations for changes in the technical and non-technical sections of the PC-I submitted to the Ministry of Water and Power for approval of the project.

NTDC Performance Contract

At the request of the NTDC Chairman, EPP's Financial Advisor drafted a new NTDC Performance Contract, based on the Chairman's outline of the format and content. A previous draft of the NTDC Performance Contract was not accepted by the Board. The NTDC Performance Contract objectives and performance measures were aligned to the NTDC Strategic Plan. The Chairman sent the new draft of the Performance Contract to the Board for Comment, and comments are awaited.

Strategic Planning Meetings

The final Strategic Planning Group meeting was held at the Avari Hotel, September 3, 2015. The results of the group meetings are included in the Strategic Business Plan. Meetings were also conducted with General Manager Human Resources, Chief Executive Design, and Company

Secretary. The Company Secretary discussed the agenda for the requested Board Planning Committee meeting scheduled for Friday September 4 in Islamabad. The Chief Executive Design will finalize the work performed by NTDC for the Distribution Company's (DISCO) 132 kV transmission line. The Human Resources meeting was held to clarify several items discussed by the attendees at the Strategic Planning Group meeting prior to including the items in the Strategic Business Plan.

Strategic Business Plan Update

Changes requested by the Board's Planning Committee to three of the objectives were completed. These revised objectives were to implement: (1) Transformation of the current NTDC Power Planning Department into a fully functional Transmission Planning Operation; (2) Process improvements and changes to Transmission Planning Operations and organization to ensure facilities are in place to accept energy from all sources; and (3) the new NTDC Safety Objective.

The Enterprise Resource Planning (ERP) Implementation Strategy report was completed and sent to the Board Planning Committee for review and comment. Discussions were held regarding completion of the new NTDC organization structure. The Chairman stated in the September 4 meeting that the NTDC Board of Directors had approved the recommended NTDC organization structure at their August 2015 meeting. The Chairman requested additional information, such as position titles, position descriptions, and terms of reference, to support the new organization structure.

SUPPORT TO MINISTRY OF PLANNING AND DEVELOPMENT

Database

EPP staff at the MWP Energy Wing continued work on the database developed for Energy Wing. The user Interface and general layout of the database were discussed with Member Energy who suggested modifications in the layout. Incorporation of all Excel-based documents into one index file for easy access is in process. All presentations, Word, and pdf files will be linked to the index file for access.

Technical Assistance

Through its seconded staff, EPP continued to provide system and network administration and general technical assistance to offices of Member Energy. EPP also provided IT application support through use of existing software to update the daily power supply demand scenario and shortfall in the power sector based on the daily information provided to the Planning Commission.

GIS Mapping

EPP staff participated in the meeting organized by Energy Wing, Planning Commission to discuss steps needed to provide access for the Energy Wing staff to the Geographical Information System (GIS) services of Pakistan Bureau of Statistics (PBS) in order to use the GIS services for project planning purposes. It was observed that even though PBS has the hardware capacity, lack of GIS experts in PBS will delay the process of information sharing with the Planning Commission.

SUPPORT TO MINISTRY OF FINANCE

During the Quarter, assistance was provided to Corporate Finance Wing of Ministry of Finance (MOF) in negotiating the loan amounting to Rs.15 billion with the consortium of local banks for partial financing of the North-South Gas Pipeline to be used for imported RLNG. Work continued on a review of the performance of the power sector for the financial year 2014-15 in collaboration with Corporate Finance Wing and Economic Reform Unit. The tax exemption proposals of AEAI cleared by EAD were pursued for the concurrence of FBR. The Corporate Finance Wing was assisted in preparation of their views and comments on the draft summary for the ECC submitted by

Ministry of Petroleum and Natural Resources for allocation of gas, i.e., 44 mscfd from Mari Deep and 60 mscfd from Mari Shallow Gas Fields to the Guddu Power Plant.

The Corporate Finance Wing was assisted in preparation of their views and comments on the amendments proposed by Ministry of Water and Power in the draft standard Energy Purchase Agreement (EPA) and draft Energy Purchase Agreement prepared for Biogas and Biomass projects with independent power producers.

Work continued on preparation of views and comments in consultation with Corporate Finance Wing on the proposed Policy for development of the Mega Hydel Project submitted by Ministry of Water and Power.

In August the tariff differential claims of the distribution companies for the month of June 2015 submitted by the Office of the Engineering Advisor, Ministry of Water and Power were reviewed. The claims submitted by the DICSOs were further discussed in a meeting with the representatives of Engineering Advisor, Ministry of Water and Power, held on August 6, 2015 at Corporate Finance Wing; more information was requested to substantiate the claims.

The work continued to finalize the term sheet submitted by the consortium of local banks for the partial financing amounting to Rs. 30 billion for the Dasu Hydro Project. Corporate Finance Wing was assisted in preparation of their views and comments on the summary for ECC submitted by Ministry of Water and Power for issuance of a sovereign guarantee by GOP in respect of syndicated term finance facility amounting to Rs.7.487 billion for the power sector.

Review of the performance of the power sector for the financial year 2014-15 in collaboration with Corporate Finance Wing and Economic Reform Unit of MOF continued.

In July Corporate Finance Wing was assisted in working out the amount of additional Tariff Differential Subsidy (TDS) for K-Electric, in pursuance of the NEPRA's decision of July 2, 2015 regarding quarterly adjustments of K-Electric for the second, third, and fourth quarters of financial year 2013-14 and the first quarter of financial year 2014-15.

The tax exemption request for equipment imported by EPP was followed up with FBR for their clearance. Corporate Finance Wing was assisted in preparing comments on the proposal regarding deregulation of CNG prices for end-consumers. The Senior Joint Secretary Corporate Finance was briefed regarding the proposal of the Khyber Pakhtunkhwa Government for an increase in net hydel profit.

SUPPORT TO MINISTRY OF PETROLEUM AND NATURAL RESOURCES

Liquefied Natural Gas (LNG) Procurement

- Epp's consultants submitted to Pakistan State Oil Company (PSO) the updated short-term Master Sales Purchase Agreement (MSPA) based on bidder's comments and other general improvements.
- Support to PSO continued on follow-up related to Qatargas LNG Sales Purchase Agreement (SPA) regarding the utilization of conventional LNG vessels for delivery of LNG instead of larger Q-flex vessels.
- EPP's consultant prepared reports for PSO on global crude oil prices in relation to Pakistan LNG imports and monthly LNG import prices for East of Suez countries covering the last two years.
- EPP's consultants supported PSO in amending and finalizing the Master Sales Purchase Agreement (MSPA) and Confirmation Notices for issuance of tenders for procuring another five LNG spot cargoes during October – December 2015.

- The tender documents (including MSPA) for the medium term have been developed and will be submitted to PSO.

Support to Port Qasim Authority (PQA)

- PQA's response to Qatargas minutes of meetings held between PQA, PSO, and Qatargas on August 10-11 in Dubai and an updated version (no. 7) of standard operating procedures for LNG carriers calling at Port Qasim developed subsequent to the Dubai meetings were submitted to PQA.
- The review by EPP's team of consultants for closing of issues arising out of various gap studies conducted for LNG terminal design and quality is in process.
- A two-day workshop was held by Sellhorn regarding the review of LNG jetty design and channel upgrading options at Port Qasim.

Shale Gas

- The Milestone-4A report has been finalized after incorporating Director General Petroleum Concessions (DGPC) comments and submitted to DGPC and USAID.
- Final draft report on Milestone-5 report was submitted to DGPC and USAID. The draft Milestone-6 report is expected to be submitted during the second week of October.

Upstream Oil and Gas

- Advisory support to DGPC on day-to-day issues continued including work on pending extension cases of licenses and leases.
- Weekly review meetings with EPP consultants were held throughout the month.
- EPP's consultant made a presentation to DGPC on September 1 regarding the new reserves reporting system.
- Revised offshore Rules 2003 have been reviewed and comments sent to consultant for necessary adjustments.
- Changes suggested by EPP consultant in the model Production Sharing Agreement (PSA) and model Petroleum Concession Agreement (PCA) have been reviewed. Necessary comments have been conveyed to the consultant for finalization of these documents for presentation to DGPC. Consultants have presented the recommended changes with rationale to DGPC professionals.
- The draft model Multi-Client Services Agreement has been finalized, and a copy was handed over to DGPC for review.
- The draft report on the granting of sub-surface rights to land owners to have access to the areas with security concerns has been received and is under review.
- Changes in the Exploration and Production Policies have been received from the consultant for finalization.
- Report on inferences has been forwarded by EPP consultant and is under review.

COMPONENT 3: NEW PROJECTS, PLANNING, AND DEVELOPMENT

KURRAM TANGI/KAITU WEIR PROJECT

During this Quarter, evaluation of the technical proposal and financial proposals received 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 structure was completed. The bidder's (Joint Venture of FWO and Descon) proposed cost is much higher than estimated price. WAPDA has accordingly decided to obtain the Planning Commission's opinion through the Ministry of Water and Power on the bidder's offered price.

The Planning Commission PC-I for the project amounting to \$126 million had been approved by GOP. It consists of \$79 million for Kaitu Weir and associated structures and \$47 million for command area development. Since project cost has increased, WAPDA is revising the PC-I of the project based on the bidder's offered price including transmission line cost. Milestone dates for funding disbursement and associated payment schedule for the proposed \$81 million USAID funding will be finalized when the contract is awarded. Kaitu Weir and associated structures will be constructed by WAPDA, whereas the command area development works will be executed by the Federally Administered Tribal Area Government.

In July EPP prepared and submitted the Activity Agreement and PIL agreement of the project to USAID. USAID has signed Activity Agreement and forwarded it to WAPDA. Milestone dates for funding disbursement and the associated payment schedule for the proposed \$81 million USAID funding is under preparation for final PIL Agreement. 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 structures and command area development to be financed by USAID and \$45 million in Italian loans under discussion by EAD with the Italian Government.

GOLEN GOL PROJECT

During the Quarter, USAID has indicated \$36 million funding to WAPDA for the works related to power house electrical and mechanical equipment (Lot 3.2 of contract). The total cost of Lot 3.1 and Lot 3.2 of the contract is \$ 75.5 million. The Kuwait Fund is providing a \$37 million loan for construction of the power house civil works and some portion of electrical and mechanical equipment.

The Saudi Development Fund is providing a soft loan of almost \$97 million for civil structures, i.e., intake structure, diversion weir, headrace tunnel, surge chamber, and pressure shaft (Contract Lot 2), whereas the OPEC Development Fund is providing \$30 million for two packages of transmission lines and grid stations (Lot 4.1 and Lot 4.2). The overall funding gap of the project cost is approximately \$71 million.

- EPP had previously submitted the Fixed Amount Reimbursement Agreement (FARA) 611(e) report, which is a USAID requirement for assessment of capabilities of beneficiary organization to effectively maintain and utilize USAID funding for the Golan Gol Project. USAID raised some queries on the draft, which EPP responded to and resubmitted the 611(e) report.
- EPP also answered queries raised by USAID on the draft PIL Agreement for Golen Gol and resubmitted it to USAID.

- Three members of the EPP team visited Golen Gol Hydro Power Project during September 2-6, 2015 to assess flood impact, as well as project physical progress and issues, and submitted an initial report.



Golen Gol Project, Chitral

COMPONENT 4: NEW ACTIVITIES

PESHAWAR ELECTRIC SUPPLY COMPANY (PESCO)

To date, 533.2 MW of transmission throughput capacity have been added to PESCO and NTDC's network as a result of EPP's assistance.

Crane-Mounted Trucks. During the Quarter, the crane-mounted trucks arrived at Port of Karachi. The exemption for the cranes has been granted and they are expected to clear customs October 1, 2015. The exemption for the trucks is still pending following which they will be handed over to PESCO. The task is expected to be completed by the end of October.

Power Transformer Program. During the Quarter, two 40 MVA power transformers were installed and commissioned at the 132 kV Chakdara and Peshawar Industrial Grid Stations adding 28 MVA of throughput capacity to PESCO's network. EPP is in the process of procuring two oil filtration plants for PESCO's operations and maintenance staff. The exemption for these items was re-called by EAD and is pending. The purchase order for three new 40 MVA power transformers has been executed. Their factory acceptance tests were scheduled for October 6, 2015 with delivery at the site scheduled for October 15, 2015.

Bucket Trucks. Registration of the bucket trucks has been completed. The trucks will help PESCO in effective and efficient maintenance of their facilities.

NATIONAL TRANSMISSION AND DESPATCH CENTRE

G2G Projects. The draft Activity Agreement of Power Transmission System for Wind Projects in Jhimpir was reviewed by NTDC and their comments received. It is under review by USAID, and the PIL for this activity is being prepared.

NTDC System Studies. The purchase order has been executed and work begun on integration of intermittent renewable resources with the national grid. EPP's consultant held meetings of all stakeholders to explain the methodology used and the results obtained in the draft final report September 16-17, 2015. EPP received the draft report on August 29; comments on the draft report were scheduled to be submitted by September 23, 2015 with comments from AEDB expected 30 Sep. The final report is due by the end of October 2015.

Grid System Operations Equipment. The factory acceptance test of all grid system operations equipment was successfully carried out during September, and the equipment is expected to arrive at port by mid-October.

Real Time Power System Simulator (RTPSS)

- The RTPSS equipment was delivered on September 23, 2015 at NTDC Planning Office. The installation and commissioning began on September 28 and is expected to be complete by October 2, 2015. The training starts on October 5.
- NTDC has completed all requirements in their scope of work for establishment of the RTPSS training facility; air conditioners have been installed and furniture and IT equipment delivered October 7, 2015.

Auto-Transformer Program

- Two JHSP 250MVA, 220/132kV Auto-Transformers were delivered at Mardan. The installation and commissioning will take place during the approved outage starting October 1, 2015.

- Circuit breakers for the Mardan transformer project were held in Customs awaiting an exemption certificate from EAD. These circuit breakers are expected to be delivered by the end of October.
- Repair work on 150 MVA and 160 MVA transformers have been completed. Factory acceptance tests of the 160 MVA transformer is underway to be followed by the 150 MVA transformer after which they will be delivered to their respective sites. The activity is expected to be completed by the end of October.

Live-Line Training

- The live-line training for 20 linemen from LESCO and QESCO was completed on September 18, 2015.
- The four-week live-line refresher course of GEPCO was complete on September 4, 2015.
- EPP handed over a complete set of tools, trailers, and vehicles to SEPCO, MEPCO, LESCO, and QESCO. All live-line tools have been handed over and their MRR signed.
- Outstanding live-line tools arrived at Islamabad Airport on September 15, 2015; the exemption certificate and Customs clearance are awaited.

PROGRAM SUPPORT ACTIVITIES

CAPACITY BUILDING

Live-Line Maintenance. QESCO and LESCO trainees completed their Live-Line Maintenance training at NTDC Tarbela Training Center on September 18, 2015. GEPCO completed their refresher course at GEPCO on September 4, 2015. To date EPP has completed four of the five refresher courses at IESCO, PESCO, FESCO, and GEPCO, along with 14 weeks of live-line maintenance training for MEPCO, SEPCO, QESCO, and LESCO.

Real Time Digital Simulator (RTDS) Training. EPP finalized selection of 24 participants for RTDS training from NTDC's system protection, design, and planning departments. The visas process for the trainers is being finalized. Training and RTDS installation are scheduled for September 28 through October 25, 2015.

Best Practices in Grid/Market/Commercial Operations Executive Exchange. EPP conducted follow-up sessions to monitor the progress made on the highlighted challenges and recommended solutions by participants at National Power Control Center (NPCC), WAPDA Power Privatization Organization (WPPO), and Central Power Purchasing Authority (CPPA). EPP conducted the Grid/Market/Commercial session September 1-3, 2015 at EPP's Lahore Office. A similar session was conducted in Islamabad on September 21, 2015 with NPCC participants. EPP will draft individual reports as well as a comprehensive report based on the highlighted challenges and potential solutions to be reviewed by EPP's Transmission Department, NTDC, WPPO, CPPA, and NPCC.

GENDER ACTIVITIES

Increased Female Participation: Twenty-seven percent of the participants in the NTDC exchange visits were women. Between April and July 2015, the percentages of women trained by EPP in each course at the NTDC Design Center Training were as follows: 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.

MONITORING AND EVALUATION

Post-Training Evaluations: EPP conducted a post-training evaluation session with the Live-Line Maintenance crew from GEPCO on September 4, 2015 and with LESCO and QESCO's crews at Tarbela Training Center on September 18, 2015.

White Paper Follow-Up Sessions: EPP hosted a white paper follow-up sessions on September 1-3, 2015 in Lahore and on September 21, 2015 in Islamabad with participants from Executive Exchange participants from Grid/Market/Commercial Operations.

Acknowledgement Letters: As of September 2015, EPP has obtained acknowledgement letters from the following organizations and stakeholders for its accomplished activities:

- Central Power Generation Company, Ltd. (CPGCL)
- Northern Power Generation Company, Ltd. (NPGCL)
- Jamshoro Power Company Limited (JPGCL)
- Gomal Zam Multipurpose Dam Project
- Satpara Multipurpose Dam Project
- Tarbela Hydropower Plant Rehabilitation Project
- Planning Commission
- Ministry of Finance
- Interstate Gas System (ISGS)

- Port Qasim Authority (PQA)
- Peshawar Electric Supply Company (PESCO)
- National Transmission and Dispatch Company (NTDC)
- Faisalabad Electric Supply Company (FESCO)
- Islamabad Electricity Supply Company (IESCO)
- Gujranwala Electric Power Company (GEPCO)
- Multan Electric Power Company (MEPCO)

Confidential information redacted

Confidential information redacted

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 Q4 FY2015	Total Achieved as of Q4 FY 2015	LOP % Achieved as of Q4 FY2015
I.a: GWh of energy sold	GWh	7880	196	9,378	119%
I.1.a: Number of beneficiaries with improved energy services due to United States Government assistance	Individuals	13,624,226	358,344	16,206,300	119%
I.1.b: GWh of energy availability	GWh	7880	196	9,378	119%
I.1.c: MW available to meet power sector demand as a result of USG assistance	MW	1,303	28	1,546.2	119%
I.1.1.a: MW of electrical power added or saved as a result of USG improvements	MW	875	0	1,027.2	117%
I.1.1.b: Efficiency of thermal power plant tests completed	No.	3	1	3	100%
I.1.1.c: Number of USG supported installations and operations and maintenance improvements	No.	181	3	169	93%
I.1.1.d: Number of transmission bottlenecks resolved	No.	121	5	127	105%
I.1.4.a: Public and private funds leveraged by the USG for energy infrastructure projects	U.S. \$	193.5 million	0	178.5 Million	92%
I.2.1.a: Number of key policies and regulations in various stages	No.	12	12	46	383%
I.2.2.a: Number of policies following international best practices	No.	6	0	4	67%
I.2.2.b: Number of board recommendations following international best practices	No.	4	1	3	75%
I.2.3.a: Number of best practice-driven systems created, improved, and implemented	No.	10	1	9	90%
I.2.4.b: Number of public forums resulting from USG assistance in which government officials and citizens interact	No.	12	3	9	75%

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

Indicator	Unit	Component	LOP Target	Achieved in Q4 FY2015	Total Achieved as of Q4 FY 2015	LOP % Achieved as of Q4 FY2015
I.I.a: Number of beneficiaries with improved energy services due to United States Government assistance	Individuals	Total	13,624,226	358,344	16,206,300	119%
		I-Generation	7,993,106	0	9,382,406	117%
		IV-Transmission Throughput Capacity	5,477,544	358,344	6,642,162	121%
		IV – Transmission Added/Saved	153,576	0	181,732	118%
I.I.b: GWh of energy availability	GWh	I & IV	7880	196.22	9,378.32	119%
		I-Generation	4,796	0	5,642.29	118%
		IV-Transmission Throughput Capacity	2999.4	196.22	3,637.14	121%
		IV – Transmission Added/Saved	84	0	99.50	118%
I.I.c: MW available to meet power sector demand as a result of USG assistance	MW	I & IV	1,303	28	1,546.2	119%
		I-Generation	863	0	1,013	117%
		IV-Transmission Throughput Capacity	428	28	519	121%
		IV – Transmission Added/Saved	12	0	14.2	118%
I.I.Ia: MW of electrical power added or saved as a result of USG improvements	MW	I & IV	875	0	1027.2	117%
		I-Generation	863	0	1,013	117%
		IV – Transmission Added/Saved	12	0	14.2	118%

