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# ENERGY POLICY PROGRAM MONTHLY PROGRESS REPORT NOVEMBER 2013



**NOVEMBER 2013**

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# ENERGY POLICY PROGRAM

## MONTHLY PROGRESS REPORT: NOVEMBER 2013

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

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

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Cover photo: Transformer of Kohat grid station under repair

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# ACRONYMS

AEAI	Advanced Engineering Associates International
CEO	Chief Executive Officer
CFW	Corporate Finance Wing
CPGCL	Central Power Generation Company Ltd
CPPA	Central Power Purchasing Authority
DISCO	Distribution Company
DGPC	Directorate General Petroleum Concessions
EMMP	Environmental Mitigation and Monitoring Plan
EPP	Energy Policy Program
FARA	Fixed Amount Reimbursable Agreement
FATA	Federally Administered Tribal Areas
FESCO	Faisalabad Electric Supply Company
FY	Financial year
GE	General Electric
GENCO	Generation Company
GEPCO	Gujranwala Electric Supply Company
GHCL	GENCO Holding Company Limited
GOP	Government of Pakistan
GTPS	Guddu Thermal Power Station
HEC	Heavy Electric Complex
HESCO	Hyderabad Electric Supply Company
JTPS	Jamshoro Thermal Power Station
KPK	Khyber Pakhtunkhwa
kV	Kilovolts, 1000 volts, unit of electric potential (voltage)
LC	Letter of Credit
LNG	Liquefied Natural Gas
LSA	LNG Services Agreement
MOF	Ministry of Finance
MPNR	Ministry of Petroleum and Natural Resources
MTPS	Muzaffargarh Thermal Power Station
MW	Megawatt, unit of electrical power, 1 million watts,

MWP	Ministry of Water and Power
NEPRA	National Electric Power Regulatory Authority
NPCC	National Power Control Center
NTDC	National Transmission and Despatch Company
O & M	Operations and Maintenance
PC	Planning Commission
PESCO	Peshawar Electricity Supply Company
PIL	Project Implementation Letter
PO	Purchase Order
Power-SIM	Power Sector Integrated Model
PPA	Power Purchase Agreement
PQA	Port Qasim Authority
PTF	Power Transformers
QESCO	Quetta Electric Supply Company
RFP	Request for Proposal
RPC	Reactive Power Compensation
SBP	State Bank of Pakistan
SCADA	Supervisory Control and Data Acquisition
SMS	Secured Metering System
SOW	Scope of Work
SSGC	Sui Southern Gas Company
TAPI	Turkmenistan-Afghanistan-Pakistan-India pipeline
TOR	Terms of Reference
ToU	Time of Use
TPS	Thermal Power Station
USAID	United States Agency for International Development
USD	United States Dollar, US\$
WAPDA	Water and Power Development Authority

# PROGRAM OVERVIEW

USAID's Energy Policy Program (EPP) supports the jointly agreed upon interests of USAID and the Government of Pakistan in power generation and transmission and related policy reform activities. Current key activities include providing monitoring and implementation support to the following six signature energy projects:

- Four repair and maintenance projects (3 GENCOs and Tarbela) with total funding of US\$ 70.73 million.
- Two multipurpose dam completion projects (Gomal Zam and Satpara) with total funding of US\$ 71 million.

When completed, these projects will add more than 863MW to Pakistan's generating capacity. As of November 2013, a total of 913 MW have been added to Pakistan's electricity grid through USAID funding as shown in the following table.

**Table I: Planned Capacity Additions for Signature Energy Projects**

Project	Planned MW Gains per FARA	Expected Gains	MW Added (as of Sept 2013)
Muzaffargarh	165	475	480
Jamshoro	55	150	270
Guddu	95	75	-
Tarbela	80	128	128
Gomal Zam	17.4	17.4	17.4
Satpara	17.66	17.66	17.6
Total	430.06	863.06	913

EPP also is providing technical support to the Ministry of Water and Power (MWP) to identify and select new generation and transmission projects. Examples include potential imports of electricity from the Central Asian Republics to Pakistan through Afghanistan; and providing analytical support for projects such as Step I & II Due Diligence for the Kurram Tangi Project.

In addition, EPP is supporting generation & transmission related studies and policy reform activities assigned by USAID. These include developing GENCO and NTDC business plans; developing policies/procedures for the National Power Control Center; and advisory services at MWP and the Planning Commission (Energy Wing), Ministry of Finance (MOF), and Ministry of Petroleum and Natural Resources (MPNR).

**Staffing:** Contractor's level of effort is comprised of 85% Pakistani and 15% international staff.

**Location:** All Provinces and Federally Administered Tribal Areas

**Total USAID Funding:** US\$ 136.731 million for six signature energy projects

US\$ 14.893 Million EPP Phase II

# COMPONENT I: PROJECT MONITORING & IMPLEMENTATION

The Energy Policy Program is providing monitoring and implementation support for the six Government-to-Government signature energy projects. These projects include rehabilitation of three thermal power plants (Muzaffargarh, Guddu and Jamshoro), and one hydropower plant (Tarbela Dam); and construction of two new multipurpose dams (Gomal Zam Dam and Satpara Dam). Total USG funding for these projects is US\$ 141.731 million (per revised agreements). As of November 2013, 913 MW have been added to Pakistan's national grid.

## HYDROPOWER PLANTS

With a total funding of US\$ 87.5 million, as much as 163MW of generation is estimated to be added through the rehabilitation of Tarbela hydropower plant and completion of two multipurpose dams, Satpara and Gomal Zam.

It is pertinent to mention here that USAID has allocated \$150 million for the Mangla Dam Rehabilitation Project, out of which \$72 Million was sub-obligated through an Activity Agreement signed on August 15, 2013. The USAID funded rehabilitation will give new life to 200MW, increase generation capacity by 70MW, enable generation of additional 600 Gwh and modernize the balance of plant to ensure increased reliability of the eventual 1,310 MW power plant.

### Rehabilitation of Tarbela Hydropower Plant under FARA

The rehabilitation work to date has resulted in the restoration of 128 MW at Tarbela hydropower plant. Replacement of generator windings at units 1, 3 & 4, and installation of relief valve seals, guides and pumps are complete. The remaining replacement/repair work will increase the reliability and sustainability of the power plant, but not support restoration of additional megawatts.

Installation of digital governor at Unit # 9 is complete; installation on other units is scheduled to start in December. Remaining equipment (SCADA, spare windings, & pump) is under procurement.

Of the US\$ 16.5 million USG funding committed for Tarbela, total disbursement as of September 2013 has reached to US\$ 13,949,917. The detailed status of the Tarbela FARA is tabulated under Annex I.

### Gomal Zam Multipurpose Dam under Activity Agreement

With a funding of US\$ 45 million USAID supported WAPDA in the completion of the main dam, powerhouse, and switchyard and transmission line.

The dam has added 17.4 MW to the national grid and is capable of storing 1.14 million acre feet of water that will control flooding and irrigate 191,000 acres of land. The project stands completed and was inaugurated by US Ambassador in September 2013. The detailed status of the Gomal Zam Activity Agreement is tabulated under Annex II.

### Satpara Multipurpose Dam under Activity Agreement

Under the Satpara Dam activity agreement, EPP has successfully achieved the project objectives ahead of the project completion date of December 31, 2013. The dam, four powerhouses, and irrigation canals are completed.

On November 26, 2013 EPP conducted a monitoring visit to the project site. During the visit it was highlighted that power generation capacity of the dam decreases in the winter season due to severe weather conditions and lack of demand for irrigation water.

Discussions were held with WAPDA and remedial measures proposed to enable continuous operation of the powerhouses during winter to minimize load shedding in the Skardu areas.

The entire funding amount of e US\$ 26 million committed for Satpara has been disbursed to GOP. The status of Satpara Activity Agreement is tabulated under Annex III.

### Rehabilitation of Mangla Hydropower Station

EPP team assisted USAID develop and finalize the 611(e) certification for the proposed refurbishment and upgrade of the 1,000 MW Mangla Hydroelectric Power Station.

EPP subcontract an environmental firm (Hagler Bailly) to prepare Environmental Mitigation and Monitoring Plan (EMMP) and Mangla Resettlement Report. The EMMP has been finalized after incorporating USAID MEO comments and will be forwarded to WAPDA/Mangla for signing.

The PC I of Mangla Rehabilitation Project is yet to be approved which will enable signing of PIL for the activity. EPP did several meetings with Planning Commission to expedite approval of PC I. EPP will continue monitoring progress and report to USAID on the project.

## THERMAL POWER PLANTS

With a funding of US\$ 54.231 million, a total of 700MW are estimated to be restored through the rehabilitation of three thermal power plants. The baseline condition of these plants at the time of signing of the FARA was 315MW; however due to further deration of the plants' operating capacity, estimated gains were increased to 700MW.

### Rehabilitation of Muzaffargarh Thermal Power Station

EPP certified an invoice of \$639,000 for PIL item#18 for purchase of Air Preheater Elements Hot end, intermediate & cold end layers along with seals for units 5&6. Also, EPP facilitated NPGCL in submitting a request to USAID for extension in the completion date due to the delay in procurements of the remaining equipment. Response is awaited from USAID.

During the reporting period, EPP engineer visited MTPS to inspect two replaced air pre heater motors (PIL item- 28). The replaced equipment was found to be compliant with the PIL.

Amendment to the Activity Agreement revised the project completion date to December 31, 2013 and obligated the incremental funding to cover the insurance and freight. Total amount disbursed to the GOP as of November 2013 is \$13,834,906<sup>1</sup>. Detailed status of the MTPS Activity Agreement is tabulated under Annex IV.

### Rehabilitation of Jamshoro Thermal Power Station

JPCL submitted a request to EPP to extend the project completion date due to the delay in procurement of some of the equipment. EPP forwarded the request to USAID and is awaiting feedback.

EPP certified invoice of \$718,875 for PIL Item#13 (Complete rehabilitation of cooling towers for units 2, 3, 4).

An amendment No. 1 to the Activity Agreement revised the project completion date to March 31, 2014 and obligated the incremental funding to cover the insurance and freight.

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<sup>1</sup> EPP certified claims of \$13,834,906; out of which \$1,639,000 is in process of reimbursement with USAID

Total amount disbursed to the GOP as of November 2013 is \$15,963,150. Detailed status of the JTPS Activity Agreement is tabulated under Annex V.

### Rehabilitation of Guddu Thermal Power Station

During a visit to the power station, EPP inspected the equipment delivered by General Electric. The inspection carried out in coordination with the representatives of GE and CPGCL. In response to the unit shutdown request submitted to NPCC, CPGCL has been granted permission to shut down the units in February 2014 for the uprate. Following the shutdown approval, CPGCL submitted a timeline extension request to EPP. The request has been forwarded to USAID and a reply is awaited.

The total amount disbursed as of November 2013 is \$17,338,790. The status of the Guddu TPS Activity Agreement can be found under Annex VI.



## GENCOS PERFORMANCE EFFICIENCY IMPROVEMENT PROGRAM

Upon GENCO Holding Company Limited's request for support in performing heat rate tests of the GENCOs in order to obtain a revised tariff from NEPRA, EPP initiated work on the activity in October 2012. The activity is being carried out in phases:

### Phase I - Heat Rate Testing & Calibration of Flow Meters

#### Calibration of Flow Meters

During the reporting period, SGS<sup>2</sup> continued with the calibration of gas flow meters at Guddu TPS. 50% of the meters at Guddu have been calibrated while procurement of orifice plates is in process to complete the calibration of remaining meters.

#### Heat Rate and Dependable Capacity Testing

This effort is being undertaken to support the power generation companies in revising their tariffs to facilitate sustainable operations.

Heat rate tests were conducted at JTPS units 1, 2, 3 & 4 in the presence of NEPRA, CPPA, PES, EPP and JTPS representatives. The final report has been submitted to USAID and GHCL for review.

### Phase II – Procurement/Installation of New Meters

New flow meters were delivered at MTPS and installation is scheduled to start from December. EPP will inspect the delivered equipment prior to the installation.

### Capacity Building at GENCOs and WAPDA

The O & M training program has been designed to develop the capacity of 120 technical staff of GENCOs and WAPDA. The training will be carried out in batches of 20 trainees, with each training session spread over a period of two weeks. EPP has requested CEO GHCL and Chairman WAPDA to provide nominations of staff for the training.

On thermal training, EPP is in the process of preparing the procurement request package. While on hydro trainings, EPP is in process of acquiring the services from a professional trainer.

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<sup>2</sup> EPP has contracted the services of SGS for calibration of flow meters at the three GENCOs located at Jamshoro, Muzaffargarh and Guddu

# COMPONENT 2: POLICY AND REFORM

## SUPPORT TO GOVERNANCE AND REFORM TEAM, MINISTRY OF WATER AND POWER

EPP is supporting the MWP in implementing the GOP's Power Sector Reform Program in generation, transmission, fuels, policy and finance.

### Power Sector Integrated Model (Power SIM)

In November, EPP worked on adding more details to the Power- SIM. Various scenario analyses such as increased commercial and industrial tariffs and conversion to power plants to gas, etc., were added to the model.

EPP developed and conducted an online training session for 5 staff members of OAPA and State Department on Power-SIM. The training agenda encompassed model overview, major assumptions and scenario analysis.

Discussions were also held with Joint Secretary Power on signing of the NDA, and conducting training of MWP staff on running the model.

### Power Purchase Agreements (PPAs)

EPP continued the review of NEPRA Act regarding the PPA rules and regulations. Meetings were also held with CPPA and staff of GENCOs designated to work on PPAs to understand the PPA modalities.

## SUPPORT TO MINISTRY OF FINANCE

EPP assisted the Ministry of Finance, Corporate Finance wing in preparation of their comments on:

- Draft policy guidelines for conversion of existing Independent Power Plants (IPP) from RFO to coal.
- Summary submitted by Ministry of Petroleum and Natural Resources regarding transaction advisory services of the TAPI project.

EPP drafted a brief on the financial support provided to the power sector by MOF, and reviewed the performance of DISCOs for the first four months of the current fiscal year.

## SUPPORT TO PLANNING COMMISSION

EPP team provided support in drafting working paper on the establishment of Hydropower Training Institute (HPTI) at Mangla, energy efficiency and conservation, the 425-525 MW Combined Cycle Power Plant at Nandipur (Revised PC-I), and the 130 MW Dubair Khawar hydropower project.

Assistance was also provided in developing a summary for Prime Minister of Pakistan on South Asian Environmental Assessment Conference 2013 (SAEAC 13) to be held in Serene Islamabad on December 4th, 2013. Additionally, EPP team drafted minutes of the Pre-CDWP meeting on Dubair Khawar hydropower.

EPP team backed up data from Member Energy's official computer and shared it with the Chief of Part and Deputy Chief of Party as directed by Member of Energy. EPP also provided

routine system and network trouble shooting and general technical assistance to the office of Member (Energy) and Minister of Planning and Development to carry out routine assignments smoothly.

## SUPPORT TO MINISTRY OF PETROLEUM & NATURAL RESOURCES

### LNG Imports

ISGS and QED completed the technical and commercial evaluation of proposals and selected a final bidder and forwarded the request to SSGC board for approval. The SSGC board gave approval of the selected bidder based on the results of the technical and commercial evaluations.

The request of support for PQA, sent by ISGS was submitted to USAID. Coordination was carried out with QED and ISGS regarding the activity deliverables.

### Shale Gas

The Non-Disclosure Agreement (NDA) was signed by EPP and LMKR and forwarded to DGPC for counter signatures. EPP team followed up regularly with DGPC and LMKR of the status of the NDA

### Upstream Oil and Gas support

The procurement request package is under preparation.

## ENERGY SECTOR INTERNSHIP PROGRAM

The internship program concluded successfully during the reporting month. Out of the total 127 interns (26 females; 101 males) inducted from 42 districts, all have graduated as of November 2013.

Out of the total 127 interns (26 females; 101 males) inducted from 42 districts, 103 (20 females; 83 males) have graduated as of October 2013. Of the graduating interns, more than 17% have obtained jobs in well reputed organizations such as BHP Billiton, KESC (Karachi Electric Supply Company), Bestway Cement, Guddu Thermal Power Station, and QESCO, Fundamental Human Rights and Rural Development Association (FHRDA), Indus Research and Development Association (IRADA), and Etimead Engineering Limited etc.

Total Number of Interns as of November 2013					
No.	Organization	Males	Females	Total Interns	Graduation Date
<b>Completed the Internship</b>					
1.	JTPS	7	2	9	April 30, 2013
2.	LTPS	13	3	16	April 30, 2013
3.	GTPS I	11	1	12	June 16, 2013
4.	Electra Consultants (KPK)	7	0	7	June 23, 2013
5.	MTPS	11	3	14	July 27, 2013
6.	NTDC Mardan	2	0	2	July 6, 2013
7.	NTDC Muzaffargarh	3	0	3	July 31, 2013
8.	NTDC Peshawar	3	0	3	July 3, 2013
9.	NTDC Hyderabad	0	2	2	August 5, 2013
10.	NTDC Dadu	1	0	1	August 5, 2013
11.	NTDC Jamshoro	1	0	1	August 5, 2013
12.	NTDC Sukkur	1	0	1	August 5, 2013
13.	GTPS II	10	2	12	September 30, 2013
14.	QESCO	4	4	8	October 31, 2013
15.	NTDC Quetta	6	0	6	October 31, 2013
16.	SSGC Quetta	3	3	6	October 31, 2013
17.	Water & Power Dept. Gilgit Baltistan	18	6	24	November 14, 2013
	<b>Grand Total</b>	<b>101</b>	<b>26</b>	<b>127</b>	

# COMPONENT 3: NEW PROJECTS, PLANNING & DEVELOPMENT

## RUN-OF-RIVER

EPP continued to advise and assist USAID evaluate the request from WAPDA for support to four run-of-river hydropower projects.

### Impact

The projects will add 419 MW cheap and clean hydroelectric power to the national grid.

### Issues/Constraint

Two of the projects are complete while the other two are close to completion. It is difficult to precisely determine how the USAID funds will be utilized.

### Steps Taken

EPP team responded to USAID's queries and requests for information on the projects.

# COMPONENT 4: NEW ACTIVITIES

## PESCO

EPP is focusing on strengthening the power transmission network and on capacity building for power sector entities involved in transmission, specifically the Peshawar Electric Supply Company (PESCO).

### Power Transformer Program

With EPP's support the rehabilitation of 20/24 MVA transformer of 132kV Jamrud grid station was completed. EPP team conducted a site inspection visit to the Jamrud grid station.

The installation of cooling fans continued throughout the month. A total of fifteen cooling fans were installed at five grid stations during the November.

### Telemetry

The performance of AMR energy meters were tested at PPI, Islamabad to ensure smooth functioning of the telemetry system. The test results were found to be satisfactory.

## LIVE LINE TRAINING

The current session of live line training for FESCO, GEPCO, and HESCO is progressing as per schedule.

## NTDC

EPP team conducted due diligence on "Evacuation of power from Lal Sohanra solar power project". A report was compiled and submitted to USAID for review. A due diligence visit was conducted to the Patrind Hydropower Plant site at Muzaffarabad to collect data relevant to the transmission lines required for the evacuation/transmission of power from the site.

Technical audits of 220 kV Ravi grid station and 220 kV WAPDA Town grid station were completed.

# ADMINISTRATION/MANAGEMENT SUPPORT TO EPP

## ACCOUNTING/FINANCE

Miscellaneous payments were made to vendors during the month. Payroll and financial reconciliations were completed.

Reviewed Payment Vouchers for the month to ascertain that adequate documentation has been gathered and that the working papers have been documented and provide an adequate basis for reporting. Reviewed Monthly Financial Report for November 2013 and analyzed the projected vs. actual expenditures for the month.

## LOGISTICS

Logistical support was provided for 57 trips made by project staff. International travel for expats was arranged, and regular follow up was maintained with the Ministry of Foreign Affairs for obtaining longer term visas for the expats.

## HUMAN RESOURCES

During the reporting month, the following staff was hired:

1. Finance and HR Assistant, Islamabad
2. ERP Lead Advisor, Lahore
3. ERP Advisors (2), Lahore

## IT

Installation	Troubleshooting	Maintenance
<ul style="list-style-type: none"> <li>• Installation of landline telephone numbers at EPP staff guesthouses</li> <li>• 8 Additional CCTV Cameras Installation and 8 channels DVR configuration</li> <li>• Installation, configuration and e-mail setup on 4 laptops and 1 Desktop PCs</li> <li>• Networking survey for Electrical, Voice and Data nodes at Lahore office</li> <li>• PRF, technical BOQ for Cisco video conferencing setup.</li> </ul>	<ul style="list-style-type: none"> <li>• EPP staff performed trouble shooting for IT equipment in the EPP office and guesthouse and for operations at the ministries</li> <li>• Time and attendance machine troubleshooting and centralized network management for EPP offices</li> </ul>	<ul style="list-style-type: none"> <li>• QuickBooks support for Islamabad and Peshawar office</li> <li>• Tracking of 14 official eVo Internet devices monthly recharges</li> <li>• CCTV System Management for EPP offices Monthly attendant backup activity of official emails</li> <li>• EP-EP.COM.PK E-mail Server and BlackBerry services administration and support</li> <li>• Monthly payroll and official documents scanning</li> <li>• Assisting Admin &amp; Finance to keep well-run database record on Travel Authorization &amp; Leave Application Forms</li> <li>• Daily routine hardware, software, systems and network support to all EPP staff.</li> </ul>

## PROCUREMENT

Purchase Orders/Subcontracts Issued during the month:

Item	Amount (in US\$)
Supply, installation and commissioning of 03 nos. 31.5/40MVA, 132/11.5kV, new Power Transformers.	1,726,426
Mobile Protection Security Services sub-contract	\$717,353
Repair of 20/26 MVA power transformers for PESCO	134,300
Customs Clearance of RFO Flow Meters	1,414
Furniture for Lahore Office	12,730
<b>Total</b>	<b>\$2,592,223</b>

Completed Purchase Orders (Inspections and deliveries) during the Month

Item	Activities Undertaken	Amount (in US\$)
Secured Metering Panel	Final inspections, inventory tagging done and delivered to NTD Lahore	219,910
RFO Flow Meters for GENCO's	Duty free customs clearance, transportation to MTPS	116,940
Cooling Fans for Power Transformers	Final inspections, inventory tagging done and delivered at PESCO warehouse.	52,571
Reactive Power Compensation Study Report	PESCO	24,571
Automated Metering System	Completed for PESCO	11,421
20/26 MVA Power Transformer	Transportation, inspection and repair estimate	6,158
Customs Clearance of RFO Flow Meters	Duty free, customs clearance, loading, transportation and unloading at Muzaffargarh	1,414
<b>Total</b>		<b>\$432,985</b>

Procurements in Process

- **O&M Trainings for Thermal Power Plants:** Consent letter sent to USAID
- **Live Line Tools & Equipment:** PO executed from Head Office
- **Upstream Oil & Gas Consultancy Services:** Draft sub-contract and delivery order under review by HO.
- **Circuit Breakers, Current Transformer & Capacitor Banks:** 10% performance bond bank guarantee received. **7 x 132kv Circuit Breakers:** Equipment has been shipped
- **15,000 liters Power Transformer Oil:** Commercial evaluations completed
- **Oil Testing of Power Transformer Oil:** Commercial evaluations completed
- **Testing Equipment for P&I Vans for PESCO:** Technical evaluation in process.

## LIST OF KEY MEETINGS

Meeting	Date	Location	Purpose	Outcome/Result
ISGS team, PQA representative, USAID Energy Office and EPP team	Nov 5, 2013	ISGS HO, Islamabad	Logistics and port issues related to Fast Track LNG Program	Developed a draft SOW to be discussed further.
Power Planners International (PPI) and PESCO	Nov 7, 2013	PESCO Office, Peshawar	Training of PESCO staff on telemetering system	PESCO staff was trained of configuration, operation and maintenance of the system
ISGS team, PQA representative, SSGC team USAID Energy Office and EPP team	Nov 25 & 26, 2013	ISGS HO, Islamabad	Support to PQA for Fast Track LNG Program LSA issues for negotiations with the bidder	Discussed the LSA issues and the need to support PQA immediately for the evaluation. Key items for discussions with the bidder

# ANNEXES

## ANNEX I: STATUS OF TARBELA FARA

Line Item No.	Unit No.	Work Item Description	Amount (US\$ Million)	Claims Submitted (US\$ Million)	Present Status
1	4	Replacement of Damaged Generator Stator Windings with Class F Insulation Windings, Unit#4	3.7	3.7	Work completed. 100% amount reimbursed
2	3	Replacement of Damaged Generator Stator Windings with Class F Insulation Windings, Unit#3	3.7	2.849	Installation of windings completed. 100% amount-less spares-has been reimbursed. WAPDA is in process of placing the PO for the spares.
3	1	Replacement of Damaged Generator Stator Windings with Class F Insulation Windings, Unit#1	3.7	3.7	Work completed. 100% amount reimbursed
4	1-14	Upgrading of the SCADA System, Units 1-14	1.0		SCADA System award is in final stages. WAPDA requested the Supplier (ABB) to furnish performance guarantee to finalize the contract.
5	1-10	Spare Seals & Guides for Relief & Bypass Valves on Turbine Side, Units 1-10	0.5	0.5	Installation completed. 100% amount reimbursed.
6	1-10	Replacement of Electromechanical Governors by Digital Ones, Unit 1-10	3.0	2.7	The equipment arrived at site on 30 November 2012. The installation on unit 9 completed. Installation will be done on unit#1 or unit#8. .90% amount reimbursed.
7	1-10	Replacement of Worn out Station Drainage & Dewatering Pumps, Units 1-10	0.4		Installation completed on all units. However, reimbursement is on hold as one small pump (required under FARA) is being procured by WAPDA to comply with the FARA's specifications. WAPDA is in tendering stage to procure the remaining small pump.
8		Training	0.5	0.5	20 engineers from Tarbela power station have completed training on O&M in Switzerland. 100% amount reimbursed.
<b>Total</b>			<b>16.5</b>	<b>13.949</b>	

## ANNEX II: STATUS OF GOMAL ZAM ACTIVITY AGREEMENT

Line Item No.	Work Item Description	Completion Status	Amount (US\$ Million)	Claims Submitted (US\$ Million)	Present Status
1.	Main Dam, Spillways Concrete & Related Works	88%	19.171	19.171	Work Completed. 100% claim reimbursed.
2.	Hydropower & Switchgear Component	90%	0.757	0.757	Work Completed. 100% claim reimbursed.
3	Main Dam and Spillways Concrete & Related Works	91%	5.125	5.125	Work Completed. 100% claim reimbursed.
4.	Main Dam & Spillways, Concrete & Related Works	100%	5.125	5.125	Work Completed. 100% claim reimbursed.
5.	Hydropower & Switchgear Component	50% of remaining 10% works by Dec 9, 2011	0.920	0.920	Work Completed. 100% claim reimbursed.
5a.	Hydropower & Switchgear Component	100% by Mar 31, 2013	0.920	0.920	Work Completed. 100% claim reimbursed.
6.	132kV Transmission Line & related works	50%	1.0	1.0	Work Completed. 100% claim reimbursed.
7.	132kV Transmission Line and related works	100%	0.5	0.5	Work Completed. 100% claim reimbursed.
7a.	132kV Transmission Line and related works	100% by Mar 31, 2013	0.5	0.5	Work Completed. 100% claim reimbursed.
8a.	Completion of Mechanical testing of Dam fixture	100%	2.0	2.0	Work Completed. 100% claim reimbursed.
8b.	Completion of Project - Filling of Reservoir, Testing, & Placement in Commercial Operation	50% by Dec 9, 2011	1.991	1.991	Work Completed. 100% claim reimbursed.
8c.	Completion of Project - Filling of Reservoir, Testing, & Placement in Commercial Operation	100% by Mar 31, 2013	1.991	1.991	Power house testing completed. 17.4 MW added to the national grid.
9.	Interest, penalties, other financial charges, and price adjustments			24.5	As and when required through September 30, 2012.
10.	Administrative & Security Cost			9.0	As and when required through September 30, 2012.
11.	Increased cost of labor & equipment user fees resulting from 6 months of construction delays	100% by Mar 2013	5.0	5.0	Claim of 5.0 million reimbursed.
<b>Total</b>			<b>45</b>	<b>45</b>	

## ANNEX III: STATUS OF SATPARA ACTIVITY AGREEMENT

Line Item No.	Work Item Description	Completion Status	Amount (US\$ Million)	Claims Submitted (US\$ Million)	Present Status
1.	Civil Works for Dam & Power House 1 & 2	94%	4.500	4.500	Work Completed. 100% Claim reimbursed.
2.	Civil Works for Dam and Power House 1 & 2	100%	1.877	1.877	Work Completed. 100% Claim reimbursed
3.	Civil, Electrical & Mechanical Work for Power Houses 3 & 4	50%	5.846	5.846	Work Completed. 100% reimbursed
4.	Civil, Electrical & Mechanical Work for Power Houses 3 & 4	100% by Jul 31, 2013	3.681	3.681	Work Completed. Power house 3 & 4 are commissioned. 100% Claim reimbursed
5.	Irrigation System	78 %	2.530	2.530	Work Completed. 100% Claim reimbursed
6.	Irrigation System	89 %	2.282	2.282	Work Completed. 100% Claim reimbursed
7.	Irrigation System	90 % by Dec 09, 2011	2.0538	2.054	Work Completed. 100% claim reimbursed
7a.	Irrigation System	100% by Dec 31, 2013	0.2282	0.2282	100% work completed.
8.	Consultancy Services	81%	0.0853	0.085	Work Completed. 100% Claim reimbursed
9.	Consultancy Services	90%	0.400	0.400	Work Completed. 100% Claim reimbursed
10.	Consultancy Services	100% by Dec 31, 2013	0.390	0.390	Ongoing till project end
11.	Project completion with Testing & Placement in Commercial Operation	90% by Dec 09, 2011	1.9116	1.9116	Work Completed. 100% Claim reimbursed
11a.	Completion of Project, with Testing & Placement in Commercial Operation	100% by Dec 31, 2013	0.2124	0.2124	Milestone 99.9% complete
<b>Total</b>			<b>26</b>	<b>26</b>	

## ANNEX IV: STATUS OF MTPS ACTIVITY AGREEMENT

Line Item No.	Unit No.	Work Item Description	Agreement Amount (US\$)	Claims Submitted under FARA (US\$)	Claims Submitted under New PIL (US\$)	Status
1	1, 2 & 3	Rehabilitation of Boiler super heater tubes to overcome failure of tubes	4,080,000	4,080,000		Material received and installed at site. Claim for 100% reimbursed
2	1- 4	Special Cooling Water Treatment.	187,440		187,440	PO issued on 25.03.2013. LC opened on 26.06.2013. Claim for 100% reimbursed
3	1-6	Use of Fuel Oil Additive as done on Unit-4 (450 Tons).	921,225		921,225	Material received at site. PO issued on 22.11.2012. LC opened on 21.01.2013. Claim for 100% reimbursed.
4	1, 2 & 3	Replacement of Cold layer element for RAH (2 sets)	170,000	170,000		Material received and installed at site. Claim for 100% reimbursed
5	1, 2 & 3	Modification of Excitation system (3 set)	191,700			Retendered for the 4 <sup>th</sup> time. In the last tender supplier didn't agree with the scope of Letter of Intent issued by NPGCL. Therefore the LOI was cancelled.. Re-tender is scheduled to be opened on 06.12.2013.
6	1, 2 & 3	Electric motors for C.T. Fan (02 No) and for GRC fan. (01 No).	184,245		184,245	PO was issued on 23.09. 2011 for electric motors while LC opened on 02.02 2012 for GRC fan. Material received at site on 18.10.2012. Claim for 100% Payment reimbursed
7	3	D.C. Storage batteries (01 Set).	60,000	60,000		Material received and installed at site. Claim for 100% reimbursed
8	1, 2 & 3	220Kv circuit breaker SF6 type (06 No).	337,605		337,605	Material received at site. LC established on 03.08.2012. Claim for 100% reimbursed
9	4	Re-blading of LP. Rotor (LP Turbine Rotor blades of row (6&7), pins & locking device).	787,035		787,035	Material received at site on 09.01.2013. Claim for 100% reimbursed
10	4	Air Pre-Heater Elements (Intermediate and Cold) 02 sets	255,000		255,000	Material received and installed at site. Claim for 100% Payment reimbursed

Line Item No.	Unit No.	Work Item Description	Agreement Amount (US\$ )	Claims Submitted under FARA (US\$ )	Claims Submitted under New PIL (US\$ )	Status
11	4	Up-grading of AVR System (01 set).	249,210		249,210	PO issued on 20.07.2012. LC opened on 12.10.2012; however the supplier demanded 100% payment in advance against Bank Guarantee. This demand was turned down by NPGCL in accordance with the prevailing rules and regulations. Re-tendering is underway. Claim for 100% payment reimbursed
12	4	Replacing UPS I&2. (01 set).	62,835		62,835	Material received at site. Claim for 100% reimbursed
13	4	DEH (01 set).	319,500			PO issued on 27.09.2013. CRRK is requested for establishment of LC on 22.10.2013.
14	4	Up-grading of FSSS System (01 set).	138,450			PO issued on 27.09.2013. CRRK is requested for establishment of LC on 22.10.2013.
15	4	Up-grading of TSI system BNC 3300 or equivalent (Turbine Supervisory Instrument) (01 set).	266,250			PO issued on 27.09.2013. CRRK is requested for establishment of LC on 22.10.2013
16	1-6	Training and software/hardware cost for CMMS and off-line efficiency monitoring system. All Units	1,000,000		1,000,000	PO issued for all the three LOTs and subsequently LC opened .EPP certified claim of US\$1,000,000 on Oct 31, 2013 and forwarded to USAID/ENR.
17	5 & 6	I.D. Fan Rotor/Impeller along with Housing and Dampers (04 Set).	625,000	562,500		Consignment received on 26.02.2011 and installed partially at unit 5. 90% claim reimbursed
18	5 & 6	Air Pre heater Elements Hot end, intermediate & cold end layers along with seals for both units (04 Set).	639,000		639,000	PO issued on 20.07.2012. LC established. EPP certified claim of \$639,000 on Nov 21, 2013 and forwarded to USAID/ENR.
19	5 & 6	Procurement of G.R.C. Fan Impeller/Rotor (01 Set).	33,548		33,548	Po issued and LC opened on 27.01.2012. Material received at site on 16.07.2012. Claim for 100% payment reimbursed
20	5 & 6	Procurement of Cooling Tower Fan Gear Box & its parts. (06 No. gear box).	236,963		236,963	PO issued and LC opened on 27.01.2012. Material received on site on 13.08.2012. Claim for 100% payment reimbursed
21	5 & 6	Economizer Tubes for both Units (02 Sets)	2,130,000		2,130,000	Po issued and LC opened on 05.04.2012. Received at site on 25.10.2012. Claim for 100% Payment reimbursed

Line Item No.	Unit No.	Work Item Description	Agreement Amount (US\$)	Claims Submitted under FARA (US\$)	Claims Submitted under New PIL (US\$)	Status
22	5 & 6	IP Turbine Rotor (01 No).	641,130		641,130	PO issued on 14.06.2012. LC established on 12.10.2012. Claim for 100% Payment reimbursed
23	5 & 6	Replacement of Damaged Exhaust flue gas ducts of material Russian Grade Steel sheets (50 M.T), Plate Type Heat Exchanger for Inner Water Cooling System of Generator and Motor for Starting Oil Pump (Vertical) Units 5-6	287,550		287,550	Material received at site. LC established for both the PO. Claim for 100% reimbursed
24		Deleted				
25	5 & 6	Repair of winding and stator of Generators and testing	319,500			PO issued on 2.10.2013. CRRK is requested for establishment of LC on 22.10.2013.
26	5 & 6	Hydraulic coupling of Boiler Feed Water Pumps (01 No).	341,865		341,865	PO issued on 26.03.2013. LC established on 19.07.2013.
27	5 & 6	Modification of Excitation System	166,140			LOI issued on 15.03.2013 but cancelled on 27.08.2013 as the supplier did not provide performance guarantee. It will be scheduled to re-tendered on 29.11.2013.
28	5 & 6	Procurement of 0.4KV Motors for Cooling Towers Fan and APH 02	10,650		10,650	PO issued and LC opened in April 2012. Material received at site on 15.10.2012. Claim for 100% payment reimbursed
29	5 & 6	Procurement of 6.6KV Motor for C.W. Pumps, CP, ID Fan, FD Fan & BF Pumps (05 No).	162,945		162,945	Po issued and LC opened in April 2012. Material received at site. Claim for 100% payment reimbursed
30	5 & 6	Procurement of 6.6/0.4KV Breaker (5, 6KV breaker, 18Nos. 0.4Kv breakers).	295,005		295,005	LC opened on 12.10.2012. Material received at site on 07.10.2013. Claim for 100% reimbursed.
31	5 & 6	Protection Relay for Generators.	29,820		29,820	Material received at site. Tenders opened and LOI issued on 24.02.2012. PO issued on 31.05.2012. LC established on 12.10.2012. Claim for 100% reimbursed
32	5 & 6	MK Breakers, Seal Oil Coolers, PMG	169,335		169,335	Material received at site. Claim for 100% payment reimbursed

Line Item No.	Unit No.	Work Item Description	Agreement Amount (US\$ )	Claims Submitted under FARA (US\$ )	Claims Submitted under New PIL (US\$ )	Status
33	5 & 6	Supply, Installation, Commissioning & Testing of complete distributed control system including field equipment such as sensors, transmitter & actuators etc. for turbine governing system DEH-III and Boiler Turbine Auto regulation system YEWPACK-II	213,000			The tender was opened for the second time but after evaluation it was decided to re-tender once again due to discrepancies in lowest offer and high cost. It will be scheduled to re-tender.
34	5 & 6	Rehabilitation of Furnace safety Supervisory System	266,250			PO issued on 30.09.2013. CRRK is requested for establishment of LC on 22.10.2013.
<b>Total</b>			<b>15,778,195</b>	<b>4,872,500</b>	<b>8,962,406</b>	

Claims Processed and Submitted to USAID = **\$13,834,906<sup>3</sup>**

### Summary of Status of Muzaffargarh TPS as of November 30, 2013

Description	Number	PIL Item No.	Amount (US\$ )
Material Received at Site	19	1,3,4,6,7,8,9,10,12,17,19,20,21,23,28,29,30,31,32	10,838,761
LC opened and material is awaited	6	2,16,18,22(24*,26)	\$2,809,435
PO issued and LC is awaited	5	13,14,15,25,34	1,309,950
Performance Bond received and PO is awaited	-	-	-
LOI Issued and Performance Bond is awaited	-	-	-
Tender/Re-Tender opened and in process			
Tender/Re-Tender Awaited	4	5,11,27,33	820,050
Total PIL Line Items	34		15,778,195

\*Item # 24 deleted in the latest Amendment and its amount adjusted in item # 26.

<sup>3</sup> EPP certified claims of \$13,834,906; out of which \$1,639,000 is in process of reimbursement with USAID

## ANNEX V: STATUS OF JTPS ACTIVITY AGREEMENT

Line Item No.	Unit No.	Work Item Description	Agreement Amount (US\$)	Claims Submitted on the Basis of Old FARA (US\$)	Claims Submitted on the Basis of New PIL (US\$)	Present Status
1	I	Rehabilitation of Air Pre-heater Side A&B Rotor.	1,672,050		<b>1,672,050</b>	LC established on 18.10.2012. Material received at site and installation is planned in July 2014. Claim for 100% Payment reimbursed.
2	I	Replacement of Final Super Heater Coils.	958,500		<b>958,500</b>	Material received and installed. Claim for 100% Payment reimbursed.
3	I	Complete replacement of Flue Gas Duct & Air Pre-heater Bottom hoppers and F.D Fan duct up to steam coil Air Heater.	720,000	<b>720,000</b>		Material received and installed. Claim for 100% Payment reimbursed.
4	I	Complete Rehabilitation of Cooling Towers.	500,000	<b>450,000</b>	<b>50,000</b>	Material received and installed. Claim for 100% Payment reimbursed.
5	I	Up gradation / replacement of Auto Burner control system and Data Acquisition System.	300,000	<b>300,000</b>		Material received and installed. Claim for 100% Payment reimbursed.
6	I	Hiring of services for major overhauling.	810,000			Tender is re-called fourth time but due to unsatisfactory reply from bidder the tender cancelled. Now the tender will be recalled again.
7	I	Soot Blower Spare Parts.	117,150		<b>117,150</b>	Material received at site. Claim for 100% Payment reimbursed.
8	I	Tube Bundles of Steam Converter, unit#1	250,000	<b>225,000</b>	<b>25,000</b>	Material received and installed. Claim for 100% Payment reimbursed.
9	I	Spares for Oil & HSD Burners & Igniters.	213,000		<b>213,000</b>	Material received at site. Claim for 100% Payment reimbursed.
10	I	Air Pre-heater Elements & Seal,	670,000	<b>670,000</b>		Material received and Installed. Claim for 100% Payment reimbursed.

Line Item No.	Unit No.	Work Item Description	Agreement Amount (US\$)	Claims Submitted on the Basis of Old FARA (US\$)	Claims Submitted on the Basis of New PIL (US\$)	Present Status
11	1-4	Use of fuel oil additives to prevent slag formation and cooling water treatment chemicals to prevent scale buildup.	958,500			PO issued on 21.05.2013. Letter of credit established for fuel oil additive but not for the cooling water treatment chemicals. Claim of US\$ 958,500 received from JPCL but not forwarded to USAID/ENR as some equipment was not procured by JPCL. JPCL is informed to re-submit the claim after procuring the remaining equipment.
12	2-4	Replacement of H.P Heaters along with the valve and controllers including Rehabilitation of Instrument Control & Protection System.	3,306,825		3,306,825	Material received and installed. Claim for 100% Payment reimbursed.
13	2-4	Complete Rehabilitation of Cooling Towers.	718,875		718,875	LC of the remaining equipment's opened. Claim for 100% Payment reimbursed.
14	2-4	Complete Rehabilitation of drain valves.	351,450		351,450	LC Established. Claim for 100% Payment reimbursed.
15	2-4	Rehabilitation of soot blowing system.	702,900		702,900	Material received at site. Claim for 100% Payment reimbursed.
16	2-4	Supply, installation and commissioning of complete economizers of three units	3,195,000		3,195,000	Material received and installed. Claim for 100% Payment reimbursed

Line Item No.	Unit No.	Work Item Description	Agreement Amount (US\$ )	Claims Submitted on the Basis of Old FARA (US\$ )	Claims Submitted on the Basis of New PIL (US\$ )	Present Status
17	2	<p>a. Modification / Rehabilitation of Electro Hydraulic and Mechanical Hydraulic Governing system.</p> <p>b. Replacement of Data Acquisition System (DAS-100), Auto Regulation System (MZ-III) and Temperature Scanners for Generator Winding Temperature, Super Heater/Re- Heater Temperature, Boiler Drum Metal Temperature, F.D, I.D Fan motor Temperature, Boiler Feed Pump Temperatures with latest Distributed Control System (DCS)</p> <p>c. Replacement of existing FSSS along with Furnace Flame Monitoring on one unit. replacement of Data Acquisition System (DAS-100), Auto Regulation System (MZ-III) and Temperature Scanners for Generator Winding Temperature, Super Heater/Re- Heater Temperature, Boiler Drum Metal Temperature, F.D, I.D Fan motor Temperature, Boiler Feed Pump Temperatures with latest Distributed Control System</p> <p>d. Replacement of Turbine Vibration system with Vibro-Control-4000 Schenk or equivalent</p>	1,171,500			Tender opened on 04.06.2013. Technical evaluation is completed and commercial evaluation is in process.
18	2	Procurement of Boiler Feed Pump Motor Complete.	117,150		117,150	Material received and installed. Claim for 100% Payment reimbursed
19	3	Replacement of Final Super Heater Coils.	958,500		958,500	Material received and installed. Claim for 100% Payment reimbursed.
20	3	Three-Way valve of Oil burner.	200,000	180,000	20,000	Material received and installed. Claim for 100% Payment reimbursed.

Line Item No.	Unit No.	Work Item Description	Agreement Amount (US\$ )	Claims Submitted on the Basis of Old FARA (US\$ )	Claims Submitted on the Basis of New PIL (US\$ )	Present Status
21	3	Spares for Overhauling of Turbine.	532,500		532,500	Material received at site. Claim for 100% Payment reimbursed.
22	4	I.D Fan Impellers.	479,250		479,250	Material received and installed. Claim for 100% Payment reimbursed.
23	1-4	Off-line Efficiency Monitoring system and training.	426,000			PO issued. Foreign exchange allocation is awaited.
		<b>Total</b>	<b>19,329,150</b>	<b>2,545,000</b>	<b>13,418,150</b>	

Claims Processed and Submitted to USAID = US\$15,963,150

### Summary of Status of Jamshoro TPS as of November 30, 2013

Description	Number	PIL Item No.	Amount (US\$ )
Material Received at Site	17	2, 3, 4, 5, 7, 8, 9, 10, 12, 14, 15, 16, 18, 19, 20, 21, 22	13,572,225
LC opened and material is awaited	2	1,13	2,390,925
PO issued and LC is awaited	2	11, 23	1,384,500
Performance Bond received and PO is awaited	-	-	-
LOI Issued and Performance Bond is awaited	-	-	-
Tender/Re-Tender opened and in process	1	17	1,171,500
Tender/Re-Tender Awaited	1	6	810,000
<b>Total PIL Line Items</b>	<b>23</b>		<b>19,329,150</b>

## ANNEX VI: STATUS OF GTPS ACTIVITY AGREEMENT

Line Item No.	Work Item Description	Agreement Amount (US\$ )	Claims Submitted (US\$ )	Present Status
1.	Purchasing the supply of Spares / Equipment for reliability assurance (up-rating and upgrading) including MK VIe Control System for GT-7&8 and ST-05	8,889,555	<b>8,889,555</b>	LC opened on 28.09.2012. Claim for 100% Payment reimbursed by USAID.
2.	Replacement of existing DCS with new Mk VIe Single Platform DCS for ST-5, GTs 7 & 8	692,250	<b>692,250</b>	LC opened on 28.09.2012. Claim for 100% Payment reimbursed by USAID.
3.	Purchasing the Supply of 1 & 2 stage buckets and nozzles for GT-7&8	3,621,000	<b>3,621,000</b>	LC opened on 28.09.2012. Claim for 100% Payment reimbursed by USAID.
4.	Rehabilitation of HRSGs, Replacement of Modified Bypass Dampers, all existing expansion joints of HRSGs and Replacement of Economizer tubes and bends of HRSG for GTs 7 & 8	1,571,940		LC of Two PO have been opened and PO of third equipment issued
5.	Rehabilitation / Replacement of Evaporative Coolers and Cooling Media of GT-7&8	213,000		One tender under evaluation and other is recalled due to no bid participation
6.	Inspection, testing and repair of Generators of GT-7, GT-8, ST-5 along with supply of essential spares and testing kits	2,212,005	<b>2,212,005</b>	LC opened on 28.09.2012. Claim for 100% Payment reimbursed by USAID.
7.	Purchasing of Control Cables, Monitoring Instruments, Motorized and pneumatic Actuators and Turbine Supervisory Instruments / Equipment for ST-5	97,980	<b>97,980</b>	LC opened on 28.09.2012. Claim for 100% Payment reimbursed by USAID.
8.	Application of Service Charges for complete up-rate and upgrade package of GTs and replacement of controls etc. for block consisting of GT-7&8 and ST-5 on turnkey basis	1,826,000	<b>1,826,000</b>	LC opened on June 20, 2013. Claim for 100% Payment reimbursed by USAID.
<b>Total</b>		<b>19,123,730</b>	<b>17,338,790</b>	

Claims Processed and Submitted to USAID = US\$ 17,338,790

**Summary of Status of Guddu TPS as of November 30, 2013**

<b>Description</b>	<b>Number</b>	<b>PIL Item No.</b>	<b>Amount (US\$ )</b>
Material Received at Site	-		-
LC opened and material is awaited	5	1,2,3,6,7,8	17,338,790
PO issued and LC is awaited	-		-
Performance Bond received and PO is awaited	-		-
LOI Issued and Performance Bond is awaited	-		-
Tender/Re-Tender opened and in process	2	4,5	1,784,940
Tender/Re-Tender Awaited	-		-
<b>Total PIL Line Items</b>	<b>8</b>		<b>19,123,730</b>

**Energy Policy Program**

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