



ORIGINAL

PAKISTAN WATER AND POWER DEVELOPMENT AUTHORITY

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Corporate Planning and Control Cell
WAPDA, 220 – Wapda House
Lahore

No.GMF/CPC/Tariff/4525/ 1162

Dated: 30 /03/2017

The Registrar, NEPRA,
NEPRA Tower, Ataturk Avenue
G-5/1, Islamabad.

For information & mfr. m.
— DPO/DPG-I
— SA (Tech) 03.04.17
— Controller (HP) ce: Chairman
— SAT-I VC/M(T)
— DG (M&E) m(Li-)
— Dir (Li) — LA (LP) — MF m(CA) — m(M&E)

Subject: REVISED/CORRECTED BULK SUPPLY TARIFF PETITION - WAPDA
HYDROELECTRIC FOR FY 2017-18

Registration
By No. 2893
Dated 3-4-17

This is in continuation of this office letter No. GMF(P)/CPC/Tariff 4525/1127 dated 21-03-2017 vide which Bulk Supply Tariff Petition of WAPDA Hydroelectric for FY 2017-18 was submitted to your office for determination of tariff, It is submitted that during the internal scrutiny, some typographical and calculation errors have been noticed. Further a preliminary discussion was also held with related NEPRA Case Officer, who advised to add some further details in support of tariff working.

Kindly find enclosed three sets of revised tariff petition after making necessary corrections and adding further details with the request to replace the tariff petition already submitted vide letter dated 21-03-2017, with the enclosed revised petition for further processing.

DA Above.

(Anwar ul Haq)
GM Finance (P)

Application along with two copies

**LICENSEE NAME: PAKISATN
WATER & POWER DEVELOPMENT
AUTHORITY**

LICENSE No. GL (HYDEL) /05 / 2004

**PETITION: PETITION FOR REVISION OF TARIFF FOR
BULK SUPPLY OF POWER FROM WAPDA
HYDEL POWER STATIONS FOR
PROJECTED REVENUE REQUIREMENTS OF
FY 2017-18**

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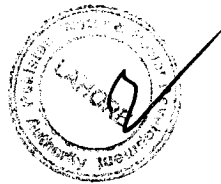
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Chapter -1

Authorization

This petition is being filed for the determination of Bulk Supply Tariff for FY 2017–18 through General Manager Finance (Power) WAPDA who has been duly authorized to sign and file this petition by the WAPDA Authority vide resolution dated 20th March 2017 (Annexure-I). In the said resolution following officers have also been authorized by the WAPDA Authority to submit and sign, individually or jointly, the documents necessary in support of this petition and to appear before NEPRA and represent WAPDA-Hydroelectric in and during proceedings of this petition:

1. General Manager Finance (Power)
2. General Manager (Hydel Operation)
3. General Manager (Hydro Planning)
4. Legal Advisor.



Chapter -2

About the Petitioner

2.1 - WAPDA

The Pakistan Water and Power Development Authority (**WAPDA**) is a statutory body, which was established through an Act of Parliament in February 1958 (WAPDA Act 1958) under a special statute on the pattern of Tennessee Valley Authority for integrated and rapid development and maintenance of water and power resources of the country.

WAPDA is an autonomous body having an owner, a board and management structure. WAPDA is wholly owned by Government of Pakistan (**GoP**) through Ministry of Water and Power, however, the governance structure of WAPDA is different than that of a corporate entity. The Authority consists of a Chairman and three (3) member one for each wing (Water, Power and Finance), who are designated as Managing Directors of respective wing. The Federal Govt. appoints the Chairman and Members of the Authority for the given tenor of the post. The General Managers of different functional departments report directly to the Members of their respective wings.

Under Section-8 of WAPDA Act 1958, the WAPDA Authority is mandated for preparing and execution of schemes of irrigation, water supply, power generation, and flood control, prevention of water logging and salted lands and inland navigation with the approval of the Federal Govt.

WAPDA Water Wing undertakes schemes for development of dams, water channels drainage and other projects as are awarded to it by Federal, provincial or local Governments.

WAPDA Power Wing was unbundled in eight distribution, four generation and one transmission and Despatch Company in 1998. Following that WAPDA is responsible for operation, maintenance, up-gradation and expansion of its in-operation Hydel power stations and construction of new projects for generation of power using Hydel sources on Built, Own and Operate (**BOO**) basis.

2.2 - Hydroelectric Business

Being the largest and bona fide generator of Hydel power in the country; WAPDA Power Wing Hydroelectric holds significant strategic importance for the country. WAPDA Power Wing Hydroelectric is operating under Generation License granted in 2004 by the Power Regulator 'NEPRA', for operation, maintenance and development of Hydel power resources in Pakistan. At present WAPDA holds Generation License for its Twenty Four (24) Hydel power projects having aggregate generating capacity of 17,360 MW out of which, five (5) Hydel power projects having aggregate capacity of 10,458 MW are under construction, whereas, nineteen (19) Hydel power stations with generation capacity of 6,902 MW are active.



2.3 - Power Sale Tariff

Section-25 of WAPDA Act provides that, the Authority shall ordinarily sell power in bulk. Further it is also stated that the rate at which the authority shall sell power shall be so fixed as to provide for meeting the operation cost, interest charges and depreciation of assets, the redemption at due time of loans other than those covered by the depreciation, the payment of any taxes and a reasonable return on investment.

2.4 - Tariff Methodology

As per Section-31 of NEPRA Act, each licensee is required to get its powers services tariff determined from NEPRA. Tariff once determined by NEPRA and notified by the GoP remains valid until the same is revised by NEPRA. WAPDA Power Wing Hydroelectric gets its tariff determined from NEPRA from time to time and the existing applicable tariff was determined by NEPRA for FY 2015-16. NEPRA determines Bulk supply tariff of Hydroelectric stations in two components i.e. Fixed Charge and Variable Charge for recovery of annual revenue requirements. Whereas Hydel related charges i.e. Net Hydel Profit under Article 161(2) of the Constitution to the provinces, Water usage charges to AJK and IRSA levy are allowed separately at the rates determined by Council of Common Interest (**CCI**) as a pass through charge. The tariff determination methodology adopted by NEPRA for WAPDA Power Wing Hydroelectric is as under:-

Annual Revenue Requirement = *Return on Regulatory Asset Base + Depreciation Expenses + O&M + Ijara Rental – Other Income [+/-] prior period adjustments for regulatory revenue gaps.

*The Regulatory Assets Base for tariff purpose includes:

- i. Average Net value of Operating Assets at historical cost
- ii. Average Capital WIP

NEPRA has adopted the mechanism of allowing Return on Regulatory Assets for WAPDA Hydroelectric stations, by including return on the actual incurred capital cost of the project going forward towards completion at the actual weighted average cost of capital (**WACC**) with 17% return on equity. The return varies based on WACC and average level of regulatory assets base. Under this mechanism, electricity consumer pays Return on Assets (**ROA**), covering Interest during Construction (**IDC**) and Return on Equity during Construction (**ROEDC**) during construction phase, whereas, in case of IPPs' IDC and ROEDC is accumulated and compounded during construction phase and compounded IDC and ROEDC is recovered from consumers through levelized tariff during the PPA period in operation phase.

This special mechanism facilitates WAPDA to attract adequate funding for Capital Cost intensive projects from local as well foreign capital market by ensuring the payment of interest on loans during construction period as well as, ensuring injection of equity at the stipulated ratio by ploughing back ROE earned during construction period of the project.

NEPRA allows WAPDA Power Wing Hydroelectric return on incurred capital cost on those projects only which are included in its Generation License. Therefore instead of executing



the project through a separate project company, the same is preferred to execute through modification of Generation License of WAPDA Power Wing Hydroelectric.

2.5 - Commercial Operation

The WAPDA Power Wing Hydroelectric files a petition for the revision in tariff based upon the annual revenue requirement of WAPDA Hydroelectric stations comprising of operating costs, depreciation and return on investment which is determined by NEPRA periodically for prudently cost incurrence. NEPRA determines Bulk supply tariff for WAPDA Hydroelectric to meet with revenue required for the defined period and recommends GoP to notify the same through a gazette notification. WAPDA Power Wing Hydroelectric can only charge the tariff officially notified by GoP through a gazette notification.

WAPDA Power Wing Hydroelectric key source of revenue is proceeds from sale of electricity at a notified tariff to NTDC/CPPA. For this purpose, after restructuring of Power Wing WAPDA has entered into Power Purchase Agreement (PPA) with NTDC on 01.03.1999 for sale of power. WAPDA and NTDC/ CPPA continued to accept and settle Hydel Power sales on mutually agreed terms, until the PPA was modified on 24th January 2011. Subsequently to ensure timely power sales payments under PPA an additional agreement for operating Escrow Account by the NTDC/ CPPA has been signed in 2013.

2.6 - Project Financing Track Record

The funds for Water sector schemes awarded to WAPDA by Federal/ Provincial/ Local Governments are earmarked by the Federal Government in the PSDP as grants/CDL. The Water sector projects after completion are physically handed over to the related provinces for their operation and maintenance and any loan liability for the project is also transferred to the respective province/agency. No revenue accrues to WAPDA after its physical transfer to the provinces or the related agencies.

For power generation schemes before unbundling of the WAPDA Power Wing, on average, the donors have been financing 60% cost of the development projects while 40% cost is self-generated through revenue from power sales. The Federal Govt. takes concessional/ soft term loans from multilateral donor agencies and relend it to WAPDA at the prevalent relending interest rates which includes, interest charges, management cost and foreign exchange risk margins. For certain power sector projects Federal Govt. provides cash development loan at defined rate repayable in 20 years after a grace period of 5 years. Under GoP guarantee, WAPDA has also been successful in raising Commercial loans from local banks both in Islamic and Conventional financial instruments. WAPDA has maintained an unblemished track record in serving these financings through timely payment of interest and principal.

Based upon the audited figures of WAPDA Power Wing Hydroelectric, Pakistan credit Rating Agency (**PACRA**) (an Associate of Fitch rating) has assigned **AAA** (Triple A) rating to WAPDA Power Wing Hydroelectric.

Federal Govt. does not make any equity investment in the Hydel power projects; however WAPDA Power Wing Hydroelectric is ploughing back as equity in new projects, the self-



source funds generated through fixing of power sale tariff by the GoP under 40% self-generation mechanism remained prevalent before advent of NEPRA.

2.7 - Operation & Maintenance

WAPDA carries out operation & maintenance of hydel power stations through self-arrangement. WAPDA appoints the human personnel and fixed their terms of employment by exercising administrative powers conferred under Section 17 & 18 of WAPDA Act. The manpower strength is reviewed each year keeping in view the functional requirement at the Hydel power stations. Being fully GoP owned autonomous body, WAPDA has adopted National Pay Scales, therefore salary package of the employees is adjusted year to year in line with adjustments made by the federal government for its employees in each financial year budget. WAPDA makes procurement of material and hire additional services in connection with O&M of power plants by observing PPRA Rules.

2.8 - Balancing, Modernization & Refurbishment (BMR)

In order to secure and boost the life of present installed capacity of Hydel power stations of Tarbela, Mangla & Warsak feasibility studies were conducted and replacement, refurbishment, up-gradation and expansion activities have been initiated as per the recommendations of the feasibility studies which would continue in different phases during next ten years.

2.9 - Research & Development

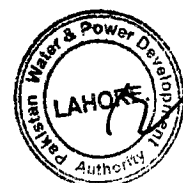
As per the Section-10 of WAPDA Act, WAPDA may devise necessary measures to carryout studies, surveys, experiments or technical research itself or from any other agency for its duties under WAPDA Act. In this regard, feasibility study works on number of projects are underway to develop untapped potential of Hydel Power generation of more than 50 thousand MW.

2.10 - Land Acquisition

WAPDA acquire land from the private owners through the land revenue department of the respective province at negotiated rates. In case of human displacements, WAPDA however carries out resettlement activities at its own as part of project implementation.

2.11 - Contract arrangement

WAPDA implements the Hydel power project through International Competitive Bidding (ICB) as per procurement guidelines of the related donor agency. WAPDA engages the Contract portion for Civil Works, as Unit Rate Contract, which is customary for large scale projects where construction quantities are unknown, so Unit rates are decided and payments are authorized on the basis of verified quantities and contracted unit rate. However, the Contract portion for Electro-Mechanical & Hydraulics (EMH) works is based on lump sum payment mode".



The Civil Works are usually a design-bid-build package designed by the Engineer. Payment is made by unit prices. Measurements for payment are a key task in administering the civil works portion of the contract, which is carried out by the independently engaged "The Engineer". The EMH works are often turnkey packages designed by the Contractor and approved by the Engineer. Payment is made lump sum as per terms agreed in the contract.

WAPDA administers the progress of the project through establishing an independent project management unit, which is disbanded on completion of the project and handing-over it for O&M to another formation.

2.12 - Hydel Power Development through Joint Ventures

In addition to the hydel power operation and development activities of WAPDA Power Wing Hydroelectric under the NEPRA's License, WAPDA continues to invest in the country's power sector in a significant manner in order to ensure sustained development of the economy.

In this regard, as mandated in WAPDA Act, WAPDA is developing run of the river Neelum Jhelum Hydel Power Project (969 MW) located in AJK through a fully owned separate company which is expected to start operation in 2018.

Moreover, WAPDA is endeavoring construction of Lower Spatgah (496 MW) and Lower Palas Valley (665 MW) under Public Private Partnership (**PPP**) mode in association with the Provincial Government of Khyber Pakhtunkhwa and has signed MOUs with the Korean firms for this purpose. WAPDA will sponsor these projects with small equity proportion.

2.13 - Maintenance of Accounts

As provided at Section 26 of WAPDA Act 1958, WAPDA shall maintain complete and accurate books of accounts in accordance with IAS adopted in Pakistan. It is mandatory for WAPDA to maintain separate accounts for all power development schemes and power generating units.

2.14 - MIS & Audits

WAPDA Power Wing Hydroelectric has implemented software based accounting modules for General Ledger, Store Inventory and Payroll which are working successfully and generate MIS reports as per requirement of the management.

Auditor General of Pakistan performs the audit of the WAPDA under WAPDA Act 1958. In addition to that, Ernst & Young, Ford Rhodes Sidat Hyder, Chartered Accountants, are auditors of WAPDA Power Wing Hydroelectric business which is regulated by NEPRA.



Chapter-3

Statement of Compliance

3.1 - Net Hydel Profits Payable to Provinces

3.1.1 - NHP to KP

NEPRA determined Bulk Supply Tariff for WAPDA Hydroelectric for FY 2015-16 on 13th November 2015 in which at Para # 66 NEPRA allowed the revised amount of NHP Rs.18,704 million to the KPK province against previously allowed Rs.6,000 million as an interim arrangement beside directed WAPDA to bring the matter of Net Hydel Profit (**NHP**) payable to provinces before the Council of Common Interests (**CCI**), through Ministry of Water & Power, to adjust NHP payable in next determination in the light of CCI decision.

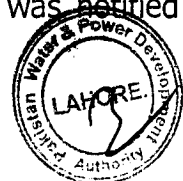
Being aggrieved on various issues WAPDA Hydroelectric filed Motion for Leave for Review under Section-16 of NEPRA Tariff Standard and Procedure Rules on 20th November 2015. NEPRA issued its revised decision on 8th January 2016 after necessary proceedings and recommend to Ministry of Water & Power for notification in the Official Gazette.

Meanwhile on 25th February 2016 Government of Pakistan and the Government of Khyber Pakhtunkhwa (KPK) agreed and signed a **MoU** on various issues including un-capping of NHP payable to KPK and settlement of past arrears on this account. The Point # 1 of the **MoU** which address the issue of NHP has been reproduced below:

- (a) The uncapped NHP, as determined and transmitted from NEPRA, would be notified immediately by Ministry of Water & power;
- (b) A total amount of Rs.70 billion has been agreed upon on account of arrears of uncapped NHP after reconciliation of mutual claims in the power sector between the two Governments as full and final settlement; and
- (c) WAPDA, after seeking concurrence of CCI through the Ministry of Water & Power, would file a tariff petition for recovery of the arrears in four installments as follows: (i) Rs.25 billion in current fiscal year and (ii) Rs.15 billion each in the next 3 years.

Subsequently, CCI in its decision # (i) of Case No.CCI.1/1/2016 during the meeting dated 29th February 2016 (**Annex-II**) gave concurrence to the **MoU** and directed WAPDA to file a tariff petition as agreed in the **MoU**. In pursuance of CCI decision Ministry of Water & Power on 7th March 2016, notified the decision of NEPRA dated 8th January 2016 wherein NHP for KPK has been uncapped @ Rs.1.10 per kWh on the generation of power plants located in KPK.

WAPDA filed supplementary tariff petition for the recovery of agreed NHP arrears as per the directives of CCI in NEPRA on 20th April 2016 and NEPRA gave its decision on 25th May 2016 allowing the recovery of NHP and arrears as per the **MoU** which was notified by Ministry of Water & Power on 24th June 2016.



3.1.2 - NHP to Punjab

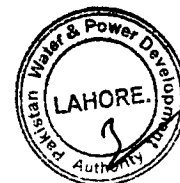
The CCI in its decision # (iii) Case No.CCI.1/1/2016 during the meeting dated 29th February 2016 referred above also decided that:

"The Government of Punjab will submit their claim to Ministry of Water and Power for consideration in the light of said MoU." (i.e. MOU with GoKP dated 25-02-2016)

In the light of above decision, Punjab Govt. submitted to Ministry of Water and Power, its claim of NHP arrear on the analogy of settlement between GoP and GoKP. A high level meeting at Ministry of Water & Power was held on 13th October 2016 followed by another meeting on 7th November 2016 in the Prime Minister House, Islamabad in which claims of Government of Punjab regarding NHP were agreed in the Minutes of meeting. It was decided to present the agreed position to CCI for its approval. For this purpose Ministry of Water & Power submitted a summary dated 28th November 2016 to CCI for approval and CCI in its decision on Case No.CCI.7/3/2016 during its meeting held on 16th December 2016 (**Annex-III**) approved the proposal contained in Para-3 of the summary as below:

- ❖ The claim of Government of Punjab for Rs. 82.71 billion as arrears of NHP, duly endorsed by WAPDA will be the full and final settlement of GoPb claim as on June, 2016.
- ❖ To settle Rs. 38.12 billion, WAPDA would issue irrevocable promissory note of one year duration to GoPb by December 31, 2016. The issuance of this promissory note will not be contingent upon tariff.
- ❖ The balance Rs.44.59 billion will be paid in three equal installments after tariff determination by CCI/NEPRA as follows:
 - Rs 14.86 billion in FY 2017-18
 - Rs 14.86 billion in FY 2018-19
 - Rs 14.86 billion in FY 2019-20
- ❖ WAPDA would file a Tariff petition for recovery of the above arrears.
- ❖ Payment of NHP to Government of Punjab @ 1.10 per unit on the analogy of Government of KPK, generated from Hydel Power Stations located in Punjab for the FY 2016-17 and onwards.

As per the CCI decision, WAPDA on 10th January 2017 has already issued the Promissory Note in the favor of Government of Punjab which is backed by GoP guarantee under ECC decision dated 11th January, 2017 (**Annex-IV**). NHP payable to Government of Punjab has been included in the instant petition.



3.2 - Apportionment of DBD Project Cost

At Para # 98 of its determination dated 13th November, 2015, NEPRA Authority apportioned the cost of Diamer Basha Dam Project into Water & Power in a ratio of 60% and 40% respectively w.e.f. FY 2014 disallowing major portion of the cost incurred by WAPDA on Diamer Basha Dam. Further in para # 99 NEPRA directed WAPDA to approach the Federal Government to pick up the remaining portion of cost disallowed by Authority. Moreover, at Para # 8-vi of NEPRA's decision dated 8th January 2016 on the review motion filed by WAPDA, NEPRA Authority again declined the request of WAPDA for non-apportionment of cost of Diamer Basha Dam into Power and Water. However, NEPRA clarified that the percentages used for apportionment are provisional and may be reconsidered in future on the basis of relevant documents to be submitted by the Petitioner (WAPDA) in the next tariff petition.

In line with the directives of NEPRA contained in the determination dated 13th November 2015 and decision dated 8th January 2016, WAPDA approached Federal Government through Ministry of Water & Power to arrange decision on **60%** costs of Diamer Basha Dam (**DBD**) disallowed by NEPRA treating it as Water Project.

In this regard, Ministry of Water & Power vide its letter dated 1st December 2016 (**Annex-V**) on the Financing Strategy for Diamer Basha Dam, directed WAPDA to submit two updated PC-Is (one for dam part and other for power generation).

The Federal Government has principally agreed to finance major part of Dam & associated costs as grant whereas, project cost mainly pertaining to electricity, hydraulic & mechanical equipment as well as apportioned cost of water ways relating to power generation will be arranged through WAPDA self sources (equity) and local & foreign project loans.

As per the instructions of Federal Government, WAPDA has prepared two updated PC-Is and likely to submit the same in Planning Division, GoP for approval shortly. The financing ratio of updated cost of multipurpose Diamer Basha Dam Project, in line with GoP guidelines works out **69%** to Power Sector and **31%** to Water Sector. The instant petition has been structured accordingly.

3.3 - Tariff Petition Based on the Individual Stations

At Para # 106 of its determination dated 13th November 2015, NEPRA Authority directed that in the next tariff petition, WAPDA shall ensure that its tariff petition is based on the individual stations and detail breakup of power projects along with assumptions/basis duly certified from a reputable audit firm.

As per the directions of NEPRA the instant tariff petition has been structured with the detail breakup in respect of each individual power station and power project covered in latest generation license of WAPDA Power Wing Hydroelectric modified on 9th January, 2015.



Chapter-4

Grounds of Petition

Projected change in Revenue Requirements of WAPDA-Hydroelectric for FY 2017-18, worked out on the audited Financial Statements of WAPDA Hydroelectric for FY 2015-16, Six (6) months (Jul-Dec) actual numbers for FY 2016-17, projected numbers for last Six (6) months (Jan-Jun) of FY 2016-17 and full FY 2017-18, have formed the basis for this petition, which are as under:

1. Increase in Regulatory Assets Base from Rs.276,960 Mln to Rs.455,710 Mln due to capital expenditures on rehabilitation/ replacement of aged generation plants and acquisition of new fixed assets as well as due to more capital investment in the under-development hydropower projects.
2. Projected increase in O&M cost for FY 2017-18 against O&M determined by NEPRA for FY 2015-16.
3. Increase in Depreciation charges for FY 2017-18 against the Depreciation determined for FY 2015-16 due to transfer of Tarbela 4th Ext and Golen gol hydropower projects in operation.
4. Debt/Equity ratio of 28:72 and WACC of 16.26% has been worked out for Hydel Power Stations as against Debt/Equity ratio of 70:30 and WACC of 14.6% allowed in tariff determination for FY 2015-16.
5. Debt/Equity ratio of 75:25 and WACC of 14.10% has been worked out for Hydel Power development projects as against Debt/Equity ratio of 80:20 and WACC of 14.6% allowed in tariff determination for FY 2015-16.
6. Other Income from NEPRA regulated business activities has been projected as Rs.300 Mln for FY 2017-18 against Rs.1,001 Mln determined by NEPRA for FY 2015-16.
7. Regulatory Revenue Gap of Rs.32,049 Mln (Rs.14,830 Mln for FY 2015-16, and Rs. 17,219 Mln for FY 2016-17) has arisen due to allowing inadequate revenue requirement based upon estimates and delayed determination and notification of tariff.



Chapter-5

Generation License

WAPDA Hydroelectric is operating under Generation License GL (Hydel)/05/2004 granted by NEPRA in 2004 for 30 years for operation, maintenance and development of Hydel power resources in Pakistan. The Generation License is subsequently modified by NEPRA various times for changes in the installed capacity and latest modification in Generation License was issued by NEPRA on 9th January 2015.

5.1 - Generation Block

NEPRA has issued the modified generation license for Twenty Four (24) Hydel Power stations having aggregated installed capacity of 17,360 MW. Out of which, Nineteen (19) hydel power stations having installed capacity of 6,902 MW are currently in operation, whereas, two (2) projects; 1,410 MW Tarbela 4th Extension and 106 MW Golen Gol Hydropower, will start commercial operation during FY 2017-18. Resultantly, in-operation installed capacity of WAPDA will increase from 6,902 to 8,418 MW. Hydel Power Stations wise detail of capacity and projected generation for FY 2017-18 is tabled below:

Sr.No.	Hydel Power Station	Installed Capacity	Net Generation (Gwh)	Net Generation (Gwh)	Net Generation (Gwh)
		MW	2015-16 (Actual)	2016-17 (Proj) NEPRA Determined	2017-18 (Projected)
1	Tarbela	3,478	15,932	14,284	15,284
2	Ghazi Brotha	1,450	6,644	6,910	6,910
3	Mangla	1,000	6,746	5,992	5,992
4	Warsak	243	917	1,021	1,021
5	Chashma	184	891	1,055	1,055
6	Duber Khawar	130	653	627	627
7	Allai Khawar	121	568	595	595
8	Jinnah HPP	96	290	463	463
9	Khan Khawar	72	36	269	269
10	Jabban	22	137	88	120
11	Rasul	22	93	122	122
12	Dargai	20	114	100	100
13	Gomal Zam	17	5	96	50
14	Nandipur	14	39	40	40
15	Shadiwal	14	25	34	34
16	Chichoki	13	33	33	33
17	Kuram Garhi	4	23	16	16
18	Renala Khurd	1	1	3	3
19	Chitral	1	4	4	4
	Total	6,902	33,151	31,752	32,738
20	Tarbela 4th Ext.	1,410			710
21	Golen Gol	106			150
	Total with Addition	8,418			33,598



SUMMARY OF HYDEL POWER STATIONS IN OPERATION

Sr. No.	STATION	Make	INSTALLED CAPACITY (MW)				Plant Availability Factor (%)
			Units No.	Capacity of Each Unit (MW)	Installed Capacity (MW)	DATE OF COMMISSIONING	
1	TARBELA	Hitachi-Japan DEW- Canada DBS- Canada. DBS-Canada	1-4	175	700	Jul-1977	91.4%
			5-8	175	700	Dec-1982	
			9-10	175	350	Apr-1985	
			11-14	432	1,728	Feb-1993	
					3,478		
2	GHAZI BAROTHA (R)	Voith Hydro- Germany Mitsubishi- Japan	1	290	1,450	Aug.2003	91.5%
			2	290		Sep.2003	
			3	290		Nov.2003	
			4	290		Jan.2004	
			5	290		May.2004	
3	MANGLA	Mitsubishi-Japan CKD-Blasko ACEC-Belgium Sakoda- Czech	1-2	100	1,000	1967	77.3%
			3-4	100		1969	
			5-6	100		Mar-74	
			7-8	100		1981	
			9	100		1993	
			10	100		1994	
4	WARSAK	Dominin- Canada	1-4	40	243	Jul-60	81.0%
			5-8	41.48		Mar-81	
5	CHASHMA (R)	Fuji- Japan GEC Alstom, France	1-6	23	184	Mar-May.2001	82.0%
			7-8	23		Dec.2000	
6	Duber Khwar (R)	Andritz Hydro Liaong Efac- China	1-2	65	130	Mar-14	90.0%
7	Allai Khwar (R)	Andritz Hydro	1-2	60.5	121	Mar-13	87.0%
8	Jinnah (R)	DEC- China	1-8	12	96	2012-13	65.8%
9	Khan Khwar (R)	DEC- China	1-2	34	72	2010-11	89.8%
			3	4			
10	Jabban (R)	Zhejiang Jinlun Electric- China	1-4	5.5	22	2013	96.0%
11	RASUL (R)	Boving & Co- England	1-2	11	22	Jul-1952	87.0%
12	DARGAI (R)	S.M Smith- USA	1-4	5	20	Dec-1952	99.2%
13	Gomal Zam	Harbin Electric-China	1-2	8.5	17	Jun-13	90.0%
14	NANDIPUR (R)	Litrostroy- Yugoslavia	1-3	4.6	14	Mar.1963	91.5%
15	SHADIWAL (R)	Dominion- Canada GEC Engineering.	1-2	6.75	13.5	Jan.1961	94.0%
16	CHICHOKI (R)	Litrostroy- Yugoslavia	1-3	4.4	13	Aug.1959	94.6%
17	Kurram GARHI (R)	Siemens- Germany	1-4	1	4	Feb.1958	86.9%
18	RENALA (R)	English Electric, UK	1-5	0.22	1	Mar.1925	84.5%
19	CHITRAL (R)	Ossberger (WG). GEC.	1-2	0.3	1	1975	95.0%
			3-4	0.2		1982	

(R) : Run-of-River Projects



WAPDA Hydroelectric O&M Manpower

Name of Power Stations	Categories							Total
	Operational & Technical	Civil Infrastructure Maintenance		Accounts & Admn	Security	Transport	Education & Allied Staff	
		Technical	Non Technical					
Ghazi Barotha	347	111	279	88	424	75	172	1,496
Mangla	367	86	587	99	254	57	147	1,597
Chashma	159	95	219	65	154	53	118	863
Khan Khwar	95	11	32	17	6	14	3	178
Terbela	575	209	1,083	140	389	93	462	2,951
Shadiwal	41	4	37	2	12	4	3	103
Alai Khwar	95	9	22	8	4	7	2	147
Dubiar Khwar	80	8	17	13	4	2	6	130
Gomal Zam	39	-	14	2	-	3	-	58
Renala	19	-	6	2	5	1	-	33
Jinnah	97	10	41	13	130	10	25	326
Chichoki	48	3	41	2	13	4	1	112
Warsak	214	71	183	12	234	44	26	784
Chitral	26	1	15	3	17	1	-	63
Kurram Ghari	31	-	50	2	-	1	3	87
Dargai	43	2	64	3	15	4	10	141
Jabban	47	-	34	3	12	2	2	100
Rasul	49	-	53	6	13	4	-	125
Nandipur	48	2	47	7	15	4	2	125
Tarbela 4th Ext.	160			40		15	12	227
Golen Gol	76	2	10	12	10	10	-	120
Corporate Offices	19	19	55	328	-	12	-	433
Total	2,675	643	2,889	867	1,711	420	994	10,199

5.2 - Development Block

Modified Generation License of WAPDA include five (5) under-development Hydel Power Projects having aggregate installed capacity of 8,298 MW, which constitutes Development Block. During FY 2017-18, 106 MW Golen Gol Hydropower and 1,410 MW Tarbela 4th Extension are scheduled to start commercial operations at different planned dates, whilst development work on the remaining under-development projects with installed capacity of 6,782 MW, mentioned below, will continue as per schedule.

Under-Development Projects		
Sr. No.	Project Name	Capacity (MW)
1	Keyal Khwar	122
2	DASU-I	2,160
3	Diamer Basha Dam	4,500
	Total	6,782



Licensed Under-development Hydropower Projects of WAPDA

Sr.N o.	Name of Hydropower Project	Contractor	Consultant	Installed Capacity	Donors	Expected COD
1	Dasu-Stage 1	M/s China Gezhouba Group Company	JV M/s Nippon Koei, Japan - M/s Dolsar, Turkey with local consultants NDC pak, DMC & PES as sub-Consultants	6*360=2160 MW	World Bank HBL International Banks	FY 2022-23
2	Golen Gol	1) M/s Sambu Sarco 2) M/s Andritz (Hydro) 3) M/s Netracon	JV GGHP (Fichtner Germany, PES, DMC - BAK)	3*36=108 MW	Saudi Fund Kuwait Fund OPEC Fund USAID	Dec, 2017
3	Keyal Khwar	M/s Sino Hydro-Hajvairy JV	JV Lahmeyer International - National Development Consultants - EASE Pak	2*64=128 MW	KfW Germany European investment Bank	FY 2020-21
4	Tarbela 4th Extension	1) M/s Sino Hydro China 2) M/s Voith Hydro Germany-M/s Voith hydro China JV 3) M/s Jiangsu Etern Company- CCC Engineering-Harbin Electric China JV	JV Mott MacDonalds Ltd. UK, Coyneet-Biller France with MM Pakistan & ACE Pakistan	3*470=1410 MW	World Bank	Aug, 2017
5	Diamer Basha Dam	N/A	JV M/s Diamer Basha Dam Consultants (DBC)- Lahmeyer International (Germany)- Lead Firm	12*375=4500MW	GoP	FY 2026-27



Chapter-6

Revenue Requirement of WAPDA FY 2017-18

6.1 - Assumption Basis of Projected Revenue Requirements of WAPDA for FY 2017-18

Revenue Requirements of WAPDA Power Wing Hydroelectric comprises O&M expenses, Depreciation charges, Ijara Rentals, Return on Regulatory Asset Base (RAB) and Regulatory Revenue Gap. Financial results for FY 2015-16 are audited and for FY 2016-17 Revenue Requirement has been forecasted on the basis of actual expenses for the first six (6) months and forecasted expenses during the remaining six (6) months. Revenue Requirement for the FY 2017-18 has been projected according to the rationale of each of the component as explained below:

6.1.1 - O&M expenses comprises of Employees Cost, Repair & Maintenance and Administration Cost.

a) Employees Costs include:

- i) Employee salary & wages which are projected for sanctioned manpower while taking into consideration an increase of 15% over FY 2016-17 to cater for annual increments and adhoc budgetary increases expected to be announced by the Federal Government in the upcoming budget;
 - ii) Employees benefits comprising different allowances are projected with a 5% increase over FY 2016-17, and
 - iii) Retiring benefits, which are projected with 10% increase over the forecasted charge for FY 2016-17 as per the Actuarial Valuation Report.
- b) Most of the Power Generation Plants, Civil Structures and Buildings of WAPDA Hydroelectric are very old and periodic repair & maintenance is necessary to ensure their smooth running. Repair and Maintenance expenses are projected to carryout daily, weekly and annual preventive routine repair & maintenance of Power Generation and General Plant & Assets as well as Civil structures & other Physical Properties scheduled for proper up-keeping of these Fixed Assets and to cater with the effect of inflation.
- c) Administration costs are projected with 10% increase over FY 2016-17 forecasted expenses which mainly include Management charges, security contracts, vehicle running costs and hydrology monitoring costs.

6.1.2 - Depreciation Charges have been worked out based on the carrying cost of the Fixed Assets at the approved rates without taking into effect the revaluation of Fixed Assets.

6.1.3 - Ijara Rentals of SUKUK-II and SUKUK-III pertaining to Tarbela Hydel Power Station has been taken as per the agreed terms of Ijara Rental Agreements.



6.1.4 - Regulatory Assets Base (**RAB**) comprises Average Fixed Assets in operation and Average Capital Works in Progress (**CWIP**).

6.1.5 - Return on RAB is worked out at Weighted Average Cost of Capital (WACC) with following variables:

- a) Average RAB has been worked out at net of revaluation on the Average of Net Fixed Assets in operation after taking into effect additions in Fixed Assets, depreciation charges and disposal of Fixed Assets as well as the additional investment made by WAPDA in CWIP of under-development projects during the year.
- b) Additions in Fixed Assets in operation during FY 2017-18 comprise of Capital Expenditures (CAPEX) for Rehabilitation and Refurbishment of Power Generation Plants & Assets as well as acquisition of new Assets & Civil Works as per the activities planned and mentioned in respect of each formation separately.
- c) Financing of average RAB through average debt and equity as well as debt to equity ratio.
- d) Return on Equity @ 17% and cost of debt as per the loan agreements.
- e) Weighted Average Cost of Capital (WACC) to calculate Return on RAB.

6.1.6 - Income accruing from assets other than financial assets mainly comprising amortization of grants has been termed as Other Income and adjusted from the Revenue Requirements.

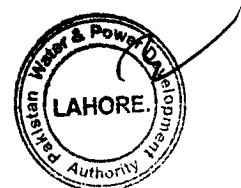
6.1.7 - Regulatory Revenue Gap arising due to following variables:

- a) Delayed determination of tariff by NEPRA and subsequently delayed Gazette notification of NEPRA determined tariff.
- b) The prudently incurred actual O&M expenses were higher than those estimated by NEPRA while determining the annual revenue requirement for FY 2015-16.
- c) Actual additions to the Regulatory Assets Base were higher than the estimates made while determining tariff by NEPRA.

6.2 - Working of Revenue Requirements of WAPDA for FY 2017-18

Revenue Requirement of WAPDA Hydroelectric for FY 2017-18 and supporting tables are as follows:

- Table of Consolidated Revenue Requirement
- Table of Consolidated O&M
- Table of Consolidated RAB, WACC, ROI



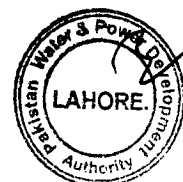
- Consolidated Fixed Assets Schedule
- Table of Regulatory Revenue Gap calculation
- Station/Project wise Return on Asset for FY 2015-16, 2016-17 and 2017-18
- Station/Project wise Revenue Requirement for FY 2015-16, 2016-17 and 2017-18

Consolidated Revenue Requirement - WAPDA

Unit	2017-18		
	Jul-Mar	Apr-Jun	2017-18
	Projected	Projected	Projected
	Based on 6,902 MW	Based on 8,418 MW	
Operating Data			
Capacity (MW)	6,902	8,418	8,418
Generation (Gwh)	25,199	8,400	33,598
Revenue Requirement (Mln Rs)			
O&M - Variable (Mln Rs)	545	182	727
O&M - Fixed (Mln Rs)	10,361	3,454	13,815
Depreciation (At Carrying Cost) (Mln Rs)	4,463	1,488	5,951
Ijara Rental (Mln Rs)	1,942	647	2,589
Return on Investment - Power Station (Mln Rs)	28,379	9,460	37,838
Return on Investment - Power Project (Mln Rs)	23,604	7,868	31,472
Other Income (Mln Rs)	(225)	(75)	(300)
Total Revenue Requirement (w/o Rev. Gap)	69,070	23,023	92,093
Regulatory Revenue Gap 2015-16 (Mln Rs)	11,122	3,707	14,830
Regulatory Revenue Gap 2016-17 (Mln Rs)	12,914	4,305	17,219
	24,037	8,012	32,049
Total Revenue Requirement (with Rev. Gap)	93,106	31,035	124,142
Tariff Components			
Variable Charge			
O&M - Variable (Rs/kWh)	0.0216	0.0216	
Fixed Charge (Rs/KW/M)	1,103.0712	904.4282	124,142
Total Revenue Gap	24,037	8,012	32,049
Variable (5%)	1,202	401	1,602
Fixed (95%)	22,835	7,612	30,446
Variable Charge (Rs/kWh)	0.0477	0.0477	
Fixed Charge (Rs/KW/M)	367.58	301.39	



O&M Expenses	TOTAL O&M		
	Audited	Forcast	Projected
For the FY ended on 30th Jun	2016	2017	2018
Employees Cost	(Mln Rs)	(Mln Rs)	(Mln Rs)
Salaries and Wages	3,026	3,451	4,124
Employees Benefits	588	805	895
Retirement Benefits	4,039	4,309	4,815
Sub.total	7,653	8,565	9,834
R&M	(Mln Rs)	(Mln Rs)	(Mln Rs)
Fuel Charges	25	45	57
Repair and Maintenance	1,107	1,238	1,454
Insurance	46	50	51
Consultancy	10	64	211
Sub.total	1,188	1,397	1,773
Admn. Expenses	(Mln Rs)	(Mln Rs)	(Mln Rs)
Dams and Hydrology Monitoring Cost	460	514	565
Survey and Experiment	265	500	500
Power, Gas and Water	277	301	332
Management/Authority Overheads	657	683	751
Vehicle Running Expenses	185	200	220
NEPRA Fees	230	237	244
Other Operating Expenses	213	237	323
Sub.total	2,286	2,672	2,935
G.total	11,127	12,634	14,542
Variable O&M (5%)	556	632	727
Fixed O&M (95%)	10,571	12,003	13,815
Total	11,127	12,634	14,542



Generation Block

Regulatory Assets Base - Power Stations

Working of Return on Assets

Working of Return on Assets		2015-16	2016-17	2017-18	
		Audited	Forecast	Budgeted	
(A)					
	Avg. Net Fixed Operating Assets (at Carrying Cost)	(Mln Rs)	186,994	184,160	232,702
	Fixed Assets Financed By:				
	Outstanding Loans	(Min Rs)	34,238	29,013	64,813
	Self Source (Balancing Figure)	(Min Rs)	152,756	155,147	167,889
	Debt Equity Financing Ratio				
	Debt	(%)	18%	16%	28%
	Equity	(%)	82%	84%	72%
	WACC				
	Cost of Debt	(%)	13%	13%	14%
	Return on Equity	(%)	17%	17%	17%
	WACC	(%)	16.23%	16.31%	16.26%
	Return on Assets	(Mln Rs)	30,340	30,028	37,838

Development Block

Regulatory Assets Base - Power Projects

Working of Return on Assets

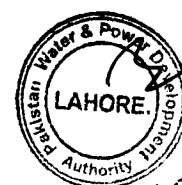
Working of Return on Assets		2015-16	2016-17	2017-18
		Audited	Forecast	Budgeted
(B)				
Avg. Capital Work in Progress	(Min Rs)	100,495	163,623	223,008
Fixed Assets Financed By:				
Outstanding Loans	(Min Rs)	76,549	135,521	167,996
Self Source (Balancing Figure)	(Min Rs)	23,945	28,102	55,012
Debt Equity Financing Ratio				
Debt	(%)	76%	83%	75%
Equity	(%)	24%	17%	25%
WACC				
Cost of Debt	(%)	14%	14%	13%
Return on Equity	(%)	17%	17%	17%
WACC	(%)	14.6%	14.2%	14.1%
Return on Investment	(Min Rs)	14,643	23,215	31,472

Consolidated

Consolidated Regulatory Assets Base - Power Stations + Power Projects

Working of Return on Assets

Working of Return on Assets		2015-16	2016-17	2017-18	
		Audited	Forecast	Budgeted	
(C)	Avg. Capital Investment	(Min Rs)	287,489	347,783	455,710
Fixed Assets Financed By:					
	Outstanding Loans	(Min Rs)	110,788	164,535	232,809
	Self Source (Balancing Figure)	(Min Rs)	176,701	183,248	222,902
Debt Equity Financing Ratio					
	Debt	(%)	39%	47%	51%
	Equity	(%)	61%	53%	49%
WACC					
	Cost of Debt	(%)	13.49%	13.43%	13.49%
	Return on Equity	(%)	17.00%	17.00%	17.00%
WACC		(%)	15.65%	15.31%	15.21%
Return on Investment (P. Stations + P. Projects)		(Min Rs)	44,982	53,243	69,310



Regulatory Revenue Gap

	(MIn Rs)					
	2015-16			2016-17		
	NEPRA	Audited	Rev. Gap	NEPRA	Forecast	Rev. Gap 2011-
	Notified by GoP 07-03-16			Notified by GoP 07-03-16		
Annual Revenue Requirement						
O&M	11,000	11,127	127	11,000	12,634	1,634
Depreciation (At Carrying Cost)	5,599	5,718	119	5,599	5,435	(164)
Ijara Rental	3,574	3,611	37	3,574	3,460	(114)
Return on Investment - Power Stations	27,535	30,340	2,805	27,535	30,028	2,493
Return on Investment - Power Projects	10,547	14,643	4,096	10,547	23,215	12,668
Other Income	(1,001)	(300)	701	(1,001)	(300)	701
Total Revenue Gap	57,254	65,139	7,885	57,254	74,473	17,219
Revenue Gap (proportionated)*	4,467	4,467	-	7,266	7,266	-
	61,721	69,606	7,885	64,520	81,739	17,219
Less: Billing of Revenue	61,721	54,776	6,945	64,520	64,520	-
Total Revenue Gap	-	14,830	14,830	-	17,219	17,219

NEPRA Allowed Revenue Gap Apportionment*	Total Gap	11,733
Tariff Applicable: 07, Mar to 30, Jun 2016 (4 months)	2015-16	4,467
01, Jul to 30, Jun 2017 (8 months)	2016-17	7,266



WAPDA Hydroelectric
Block wise Revenue Requirement
FY 2015-16

Block #	Generation Block													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Block name	Tarbela	Gh. Brotha	Mangla	Warsak	Chashma	Duber Khawar	Allai Khawar	Jinnah	Khan Khawar	Jabban	Rasul	Dargai	Gomal Zam	Nandipur
Variable O&M (Mln.Rs)	209	77	102	49	50	5	5	12	10	3	5	7	3	6
Fixed O&M	3,978	1,468	1,936	934	950	89	98	224	182	60	102	129	51	107
Depreciation	393	1,866	973	74	475	110	598	443	407	130	4	3	191	1
Ijara Rentals	3,611	-	-	-	-	-	-	-	-	-	-	-	-	-
Return on Investment	1,101	10,993	3,706	197	1,987	4,066	2,548	2,191	1,558	582	40	11	1,286	10
Other Income														
Total	9,292	14,405	6,718	1,254	3,462	4,269	3,249	2,869	2,157	776	151	149	1,530	123
Weighted Average Cost of Capital (WACC)														
Average Investment	6,439	68,997	21,802	1,159	12,221	24,059	15,082	15,927	9,220	3,794	236	65	7,567	58
Debt/Equity Ratio														
Debt	19%	20%	0%	0%	12%	19%	20%	36%	19%	68%	0%	0%	0%	0%
Equity	81%	80%	100%	100%	88%	81%	80%	64%	81%	32%	100%	100%	100%	100%
Weighted Average Cost of Capital (WACC)	17.09%	15.93%	17.00%	17.00%	16.26%	16.90%	16.89%	13.76%	16.90%	15.35%	17.00%	17.00%	17.00%	17.00%



WAPDA Hydroelectric
Block wise Revenue Requirement
FY 2015-16

Block #	Generation Block						Development Block						Total
	15	16	17	18	19	20	21	22	23	24	25	26	
Block name	Shadiwal	Chichoki	K. Garhi	Renala	Chitral	Corp. Office	DBD	T-4	Golen Gol	Keyal	DASU	Others	
Variable O&M (Min.Rs)	4	4	3	2	2	-	-	-	-	-	-	-	556
Fixed O&M	69	75	56	30	34	-	-	-	-	-	-	-	10,571
Depreciation	1	1	0	1	2	45	-	-	-	-	-	-	5,718
Ijara Rentals	-	-	-	-	-	-	-	-	-	-	-	-	3,611
Return on Investment	8	4	1	3	6	41	5,761	4,249	1,958	355	1,189	1,130	44,983
Other Income													(300)
Total	81	84	60	35	43	87	5,761	4,249	1,958	355	1,189	1,130	65,139
Weighted Average Cost of Capital (WACC)													
Average Investment	44	22	6	19	34	243	46,227	25,386	11,769	2,187	7,827	7,099	287,489
Debt/Equity Ratio													
Debt	0%	0%	0%	0%	0%	0%	89%	82%	51%	37%	91%	6%	39%
Equity	100%	100%	100%	100%	100%	100%	11%	18%	49%	63%	9%	94%	61%
Weighted Average Cost of Capital (WACC)	17.00%	17.00%	17.00%	17.00%	17.00%	17.00%	12.46%	16.74%	16.64%	16.25%	15.19%	15.92%	15.65%



WAPDA Hydroelectric
Block wise Revenue Requirement
FY 2016-17

Block #	Generation Block													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Block name	Tarbela	Gh. Brotha	Mangla	Warsak	Chashma	Duber Khawar	Allai Khawar	Jinnah	Khan Khawar	Jabban	Rasul	Dargai	Gomal Zam	Nandipur
Variable O&M (Mln.Rs)	238	86	116	55	55	6	6	14	9	5	6	8	4	7
Fixed O&M	4,527	1,630	2,210	1,047	1,037	112	115	274	175	92	115	147	83	132
Depreciation	374	1,773	925	70	452	104	568	421	387	123	4	3	181	1
Ijara Rentals	3,460	-	-	-	-	-	-	-	-	-	-	-	-	-
Return on Investment	1,148	10,917	3,704	199	1,952	4,088	2,451	2,122	1,498	567	34	14	1,256	11
Other Income														
Total	9,747	14,406	6,955	1,371	3,495	4,311	3,140	2,831	2,069	787	158	171	1,525	151
Weighted Average Cost of Capital (WACC)														
Average Investment	6,718	67,570	21,788	1,171	11,913	24,189	14,514	15,622	8,865	3,682	197	80	7,389	64
Debt Equity Ratio														
Debt	17%	17%	0%	0%	10%	16%	18%	29%	17%	65%	0%	0%	0%	0%
Equity	83%	83%	100%	100%	90%	84%	82%	71%	83%	35%	100%	100%	100%	100%
Weighted Average Cost of Capital (WACC)	17.08%	16.16%	17.00%	17.00%	16.38%	16.90%	16.89%	13.58%	16.90%	15.41%	17.00%	17.00%	17.00%	17.00%



WAPDA Hydroelectric
Block wise Revenue Requirement
FY 2016-17

Block #	Generation Block						Development Block						Total
	15	16	17	18	19	20	21	22	23	24	25	26	
Block name	Shadiwal	Chichoki	K. Garhi	Renala	Chitral	Corp. Office	DBD	T-4	Golen Gol	Keyal	DASU	Others	
Variable O&M (Mln.Rs)	4	5	3	2	2	-	-	-	-	-	-	-	632
Fixed O&M	84	86	65	34	38	-	-	-	-	-	-	-	12,003
Depreciation	1	1	0	1	2	46	-	-	-	-	-	-	5,435
Ijara Rentals	-	-	-	-	-	-	-	-	-	-	-	-	3,460
Return on Investment	10	5	4	3	6	39	8,282	6,898	2,375	624	3,886	1,150	53,243
Other Income													(300)
Total	100	96	72	39	48	85	8,282	6,898	2,375	624	3,886	1,150	74,473
Weighted Average Cost of Capital (WACC)													
Average Investment	60	30	22	19	36	229	69,593	43,387	14,749	3,859	24,822	7,214	347,783
Debt Equity Ratio													
Debt	0%	0%	0%	0%	0%	0%	91%	81%	70%	42%	97%	6%	47%
Equity	100%	100%	100%	100%	100%	100%	9%	19%	30%	58%	3%	94%	53%
Weighted Average Cost of Capital (WACC)	17.00%	17.00%	17.00%	17.00%	17.00%	17.00%	11.90%	15.90%	16.10%	16.17%	15.66%	15.94%	15.31%



**WAPDA Hydroelectric
Block wise Revenue Requirement
FY 2017-18**

Block #	Generation Block													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Block Name	Tarbela	Gh. Brotha	Mangla	Warsak	Chashma	Duber Khawar	Allai Khawar	Jinnah	Khan Khawar	Jabban	Rasul	Dargai	Gomal Zam	Nandipur
Variable O&M (Mln.Rs)	266	95	128	61	60	9	8	13	12	7	8	9	5	9
Fixed O&M	5,050	1,807	2,432	1,151	1,140	168	155	256	221	126	151	163	102	163
Depreciation	366	1,737	906	69	443	102	557	412	379	121	4	3	178	1
Ijara Rentals	2,589	-	-	-	-	-	-	-	-	-	-	-	-	-
Return on Investment	1,331	10,717	3,749	243	1,944	4,085	2,365	2,246	1,449	555	37	17	1,230	14
Other Income														
Total	9,602	14,356	7,215	1,524	3,586	4,363	3,085	2,927	2,061	809	200	191	1,515	186

Weighted Average Cost of Capital (WACC)

Average Investment

Debt/Equity Ratio

Debt

Equity

Weighted Average Cost of Capital (WACC)

7,801	66,160	22,055	1,429	11,770	24,165	14,006	15,480	8,578	3,588	220	99	7,234	83
13%	16%	0%	0%	7%	14%	16%	21%	15%	61%	0%	0%	0%	0%
87%	84%	100%	100%	93%	86%	84%	79%	85%	39%	100%	100%	100%	100%
17.07%	16.20%	17.00%	17.00%	16.52%	16.90%	16.89%	14.51%	16.90%	15.48%	17.00%	17.00%	17.00%	17.00%



**WAPDA Hydroelectric
Block wise Revenue Requirement
FY 2017-18**

Block #	Generation Block								Development Block						Total
	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
Block Name	Shadiwal	Chichoki	K. Garhi	Renala	Chitral	T-4	Golen Gol	Corp. Office	DBD	T-4	Golen Gol	Keyal	DASU	Others	
Variable O&M (Mln.Rs)	7	6	4	2	2	14	3	-	-	-	-	-	-	-	727
Fixed O&M	140	123	76	36	43	266	48	-	-	-	-	-	-	-	13,815
Depreciation	1	1	0	1	2	468	156	46	-	-	-	-	-	-	5,951
Ijara Rentals	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,589
Return on Investment	14	10	8	4	7	5,834	1,948	31	13,081	4,304	1,277	1,226	10,434	1,150	69,310
Other Income	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(300)
Total	162	140	89	42	53	6,581	2,155	77	13,081	4,304	1,277	1,226	10,434	1,150	92,093
Average rate of cost of sale (Rs/kWh) with out R. Gap															2.74
Regulatory Revenue Gap 2015-16														14,830	
Regulatory Revenue Gap 201-17														17,219	
Total Revenue Gap														32,049	0.95
Average Cost of Power Sales Tariff (Rs/kwh) with R. Gap															3.69
Net Electrical Output (GWh)															33,598
Weighted Average Cost of Capital (WACC)	81	57	50	21	39	37,190	12,414	183	104,005	27,072	7,932	7,740	69,046	7,214	455,710
Average Investment															
Debt/Equity Ratio															
Debt	0%	0%	0%	0%	0%	86%	69%	0%	67%	0%	0%	58%	94%	6%	51%
Equity	100%	100%	100%	100%	100%	14%	31%	100%	33%	0%	0%	42%	6%	94%	49%
Weighted Average Cost of Capital (WACC)	17.00%	17.00%	17.00%	17.00%	17.00%	15.69%	15.70%	17.00%	12.58%	15.90%	16.10%	15.84%	15.11%	15.94%	15.21%



Chapter-7

7.1

Cost of Power Sales Tariff for FY 2017-18				
		2017-18		Applicability
		Jul-Mar	Apr-Jun	
		Based on 6,902 MW	Based on 8,418 MW	
Regular Tariff				
Variable Charges	(Rs/kWh)	0.0216	0.0216	On Total Generation
Fixed Charges	(Rs/KW/M)	1,103.0712	904.4282	On Total Generation Capacity
Recovery Of Revenue Gap				
Variable Charges	(Rs/kWh)	0.0477	0.0477	On Total Generation
Fixed Charges	(Rs/KW/M)	367.5808	301.3863	On Total Generation Capacity



Chapter-8

Cost plus Hydel Levies Margins

8.1 - Net Hydel Profits

Article 161(2) of the Constitution of Pakistan 1973 governs payment of Net Hydel Profit to the Provinces. This reads as follows:-

"The net profits *earned* by the Federal Government, or any undertaking established or administered by the Federal Government, from the bulk generation of power at a hydro-electric station shall be paid to the province in which the hydro-electric station is situated."

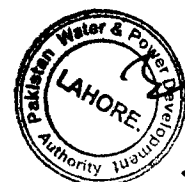
Explanation: For the purposes of this clause "net profits" shall be computed by **deducting** from the revenues accruing from the bulk supply of power from the **bus-bars of a hydro-electric station** at a rate to be determined by the **Council of Common Interests**, the **operating expenses** of the station, which shall include any sums payable as taxes, duties, interest or **return on investment**, and **depreciation** and element of obsolescence, and over heads, and provision for reserves".

From the above provisions, the mathematical formula for computation of "net Profit" is derived as under:

1. Bulk supply of power at bus bar (to be measured through meters)
2. Revenue rate of power sale at bus bar (to be determined by CCI)
3. Revenue of power sale at bus bar (1*2)
4. Operation expenses of hydel power stations including taxes, duties, return on investment, depreciation and provisions for reserves (WAPDA generation cost to be determined by NEPRA)
5. Net profit (3-4)

Under Section-17(3)(i) & (ii) of Tariff Standards & Procedure Rules 1998, NEPRA allows WAPDA being licensee, the recovery of any and all cost prudently incurred to meet the demonstrated needs through power sale tariff which should generally be calculated by including a depreciation charge and the rate of return on the capital investment commensurate to that earned by other investments of comparable risks.

The determination of revenue rate for bulk supply of power at busbar is the mandate of the CCI under Article 161(2) of the Constitution. In January 1991, the CCI adopted Kazi Committee Methodology for computation of "Net Profit", which WAPDA disputed considering; it not in consonance of aforesaid provisions of the Constitution and it works out the notional net profit for a year which WAPDA has not actually earned. Pending resolution of the matter, the Federal Govt. levied a "Surcharge" on electricity consumers and directed WAPDA to pay an adhoc payment of Rs 6 billion per annum to Govt. of KP, out of the proceeds of said surcharge. On the clarification of Finance Division, NEPRA included Rs 6 billion in the revenue requirement of WAPDA as an adhoc arrangement while determining first ever bulk supply tariff of WAPDA Hydel power stations for FY 2003-04. NEPRA



continued to include the same amount in annual revenue requirement of WAPDA in each subsequent tariff determination until FY 2013-14.

8.2 - Net Hydel Profits Payable to Provinces (KP)

NEPRA determined Bulk Supply Tariff for WAPDA Hydroelectric for FY 2015-16 on 13th November 2015 in which at Para # 66 NEPRA allowed the revised amount of NHP Rs.18,704 million to the KP province against previously allowed Rs.6,000 million as an interim arrangement beside directed WAPDA to bring the matter of Net Hydel Profit (**NHP**) payable to provinces before the Council of Common Interests (**CCI**), through Ministry of Water & Power, to adjust NHP payable in next determination in the light of CCI decision.

The CCI in its decision # (i) of Case No.CCI.1/1/2016 during the meeting dated 29th February 2016 gave concurrence to the **MoU**. In pursuance of CCI decision Ministry of Water & Power on 7th March 2016, notified the decision of NEPRA dated 8th January 2016 (**Annex-VI**) wherein uncapped NHP for KP has been allowed @ Rs.1.10 per kWh on the generation of power plants located in KP from FY 2015-16.

On filing supplementary tariff petition by WAPDA for the recovery of agreed NHP arrears amount of Rs.70 billion payable in 4 installments of Rs.25 billion in FY 2015-16 and Rs.15 billion each in next 3 years NEPRA determined the tariff on 25th May, 2016 which was notified by Ministry of Water & Power on 24th June 2016 (**Annex-VII**).

Payment of NHP to GoKP during FY 2017-18 will comprise of the following details;

8.2.1 - Regular NHP during FY 2017-18: Regular NHP will be paid to KP at the notified un-capped NHP rate of Rs.1.10 per kWh as per the actual generation from hydropower stations located in KP during FY 2017-18.

8.2.2 - NHP Arrears for FY 2015-16 at Un-capped Rate: As per Sub Section (4) of Section (31) of NEPRA Act, determined tariff is applicable after notification by the Federal Government in the official Gazette. The revised Bulk Supply Tariff for FY 2015-16 determined by NEPRA was notified by GoP on 7th March 2016, therefore, WAPDA Hydroelectric could not bill NHP at the revised rates till 6th March 2016. NHP arrears up to 6th March 2016 during FY 2015-16 works out to Rs.9,298 million as under:

(a)	Actual Generation from 1 st July 2015 to 6 th March 2016		12,180 kWh
(b)	Un-capped NHP rate determined and notified		Rs.1.10/kWh
(c)	NHP payable upto 6 th March 2016	(a) x (b)	Rs.13,398 million
(d)	Actual NHP paid upto 6 th March 2016		Rs.4,100 million
(e)	NHP arrear for FY 2015-16 at un-capped rate	(c) - (d)	Rs.9,298 million

Arrear amount of NHP at un-capped rate for FY 2015-16 Rs.9,298 million are proposed to be recovered as fixed charges on the existing installed capacity of WAPDA i.e. 6,902 MW during FY 2017-18.

8.2.3 - Past NHP arrears installments payable during FY 2017-18 & FY 2018-19:

CCI has also approved to pay past NHP arrears installments of Rs.15,000 million each during FY 2016-17, FY 2017-18 & FY 2018-19. As per NERPA determination dated 25th May 2016, it shall be recovered as fixed charges on the existing installed capacity of WAPDA Hydroelectric of 6,902 MW during FY 2016-17 and FY 2017-18. On schedule COD of Tarbela 4th Extension and Golen Gol HPP in last quarter of FY 2017-18, the installed capacity of WAPDA Hydroelectric will be enhanced from 6,902 to 8,418 MW. NEPRA may make necessary adjustment in the NHP arrears rates due to change in the installed capacity of WAPDA Hydroelectric during FY 2017-18 in line with its decision dated 25th May 2016 on supplementary tariff for payment of NHP arrears to KP notified by GoP on 24th June 2016.

In view of above, payment of NHP to KP will be as under:

NHP Payable to KP

Regular NHP	Rs/kWh	1.1000	Generation of power plants located in KP.
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NHP Arrears during FY 2017-18 based upon 6,902 MW capacity

FY 2015-16 (Rs.9,298 million)	Rs/kW/Month	112.262	1 st July 2017 to 30 th June 2018
FY 2017-18 (Rs.15,000 million)	Rs/kW/Month	181.107	1 st July 2017 to 30 th June 2018

NHP Arrears during FY 2018-19 based upon 8,418 MW capacity

FY 2018-19 (Rs.15,000 million)	Rs/kW/Month	148.491	1 st July 2018 to 30 th June 2019.
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8.3 - Markup Cost of Rs.25 Billion Loan Taken for Payment of NHP Arrears during FY 2015-16

As per decision of CCI, WAPDA Hydroelectric has to pay the first installment of NHP arrears amounting to Rs.25 billion as agreed in MoU between GoKP and GoP during FY 2015-16. Keeping in view the time lines agreed in the MoU, WAPDA on the directive and with the support of GoP negotiated a loan of Rs.25 billion for payment of NHP arrears to GoKP during FY 2015-16 (**Annex-VII**) and requested NEPRA in its petition dated 21st April, 2016 to allow recovery of tentative markup cost of Rs.1,875 million through tariff which NEPRA disallowed at Para#22 of its decision dated 25th May 2016 being not approved by the CCI.

WAPDA has paid interest of Rs.722 million for 6 months and similar amount will be accrued for next 6 months on the maturity date i.e 21st June, 2017. Therefore, NEPRA is requested to allow recovery of Rs.1,444 million actual markup cost of Rs.25 billion loan as Regulatory Revenue Gap for FY 2016-17 to be recovered as Fixed Charges on the existing installed capacity of WAPDA Hydroelectric 6,902 MW during FY 2017-18.

Markup Cost of Rs.25 B Loan based upon 6,902 MW capacity during FY 2017-18	Rs/kW/Month	17.435	1 st July 2017 to 30 th June 2018
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8.4 - Net Hydel Profits Payable to Provinces (Punjab)

In the light of CCI decision dated 29th February 2016, Federal Govt. agreed to the following NHP payment mechanism to the Govt of Punjab (GoPb):

- (i) Settlement of arrear of Rs.82.71 million in 4 installments as under:
 - a. To settle Rs.38.12 billion, WAPDA would issue irrevocable promissory note of one year duration to GoPb by December 31, 2016.
 - b. The balance Rs.44.59 billion will be paid in three equal installments:
 - Rs 14.86 billion in FY 2017-18
 - Rs 14.86 billion in FY 2018-19
 - Rs 14.86 billion in FY 2019-20
 - c. Payment of NHP to Government of Punjab @ 1.10 per unit, generated from Hydel Power Stations located in Punjab for the FY 2016-17 and onwards.
- (ii) WAPDA would file a Tariff petition for recovery of the above arrears and payment of NHP @ Rs.1.10/kWh from FY 2016-17 onwards.

The CCI approved the said payment arrangement of NHP payable to Government of Punjab in line with the CCI decision dated 16th December, 2016 (**Annex-III**) during FY 2017-18 will include:

8.4.1 - Regular NHP during FY 2017-18: Regular NHP will be paid to Punjab @ Rs.1.10 per kWh as per the actual generation from hydropower stations located in Punjab during FY 2017-18.

8.4.2 - 1st Installment of Past NHP arrears Rs.38.12 billion: CCI has approved that in order to settle Rs.38.12 billion, WAPDA would issue irrevocable promissory note of one year duration to GoPb by December 31, 2016. In this regard WAPDA has already issued the requisite Promissory Note in the favor of Government of Punjab on 10th January 2017 (**Annex-VIII**). WAPDA has to ensure payment of Rs.38.12 billion to GoPb by 31st Dec 2017, for which WAPDA has no financial mechanism other than recovery through hydel power sales. Keeping in view the reasonable processing time for tariff petition in NEPRA, it is therefore, proposed that recovery of Rs.38,120 million may be allowed as fixed charges in six months from 1st July 2017 to 31st December 2017 on the existing installed capacity of WAPDA i.e. 6,902 MW.

8.4.3 - NHP Arrears for FY 2016-17: CCI has approved Payment of NHP to Government of Punjab @ 1.10 per unit on the analogy of Government of KP, generated from Hydel Power Stations located in Punjab for the FY 2016-17 and onwards. WAPDA could not charge NHP @ 1.10 per kWh on generation from Hydel Power Stations located in Punjab before determination of tariff by NEPRA and notification by the Federal Government in the official Gazette. However, based upon the actual generation of first 7 months and expected generation for the last 5 months of FY 2016-17, the generation from Hydel Power Stations located in Punjab during FY 2016-17 has been forecasted to be 8,660 kWh. Therefore,



forecasted amount of NHP payable to Punjab during FY 2016-17 (current year) works out to Rs.9,526 million as under:

NHP Forecasted for FY 2016-17

Sr. No.	Power Station	Generation During FY 2016-17 [MkWh]			NHP Rate [Rs/kWh]	NHP Amount [Mln. Rs]
		Actual Generation Jul-16 to Jan-17	Forecast Generation Feb-17 to Jun-17	Total Forecasted Generation		
1	Ghazi Barotha	4,125	2,785	6,910	1.10	7,601
2	Chashma	549	506	1,055	1.10	1,161
3	Jinnah HPP	150	313	463	1.10	509
4	Rasul	45	77	122	1.10	134
5	Nandipur	21	19	40	1.10	44
6	Shadiwal	17	17	34	1.10	37
7	Chichoki	17	16	33	1.10	36
8	Renala Khurd	1	2	3	1.10	3
	Total	4,925	3,735	8,660		9,526

Since almost 8 months of FY 2016-17 have already gone and keeping in view the time for processing of tariff petition in NEPRA. It is therefore, requested that recovery of Rs.9,526 million may be allowed as fixed charges during FY 2017-18 on the existing installed capacity of WAPDA i.e. 6,902 MW. Any over/under recovery may be adjusted by NEPRA in the next tariff determination.

8.4.4 - Payment of Remaining NHP arrears of Rs.44.59 billion: CCI has also approved to pay remaining amount of past NHP arrears of Rs.44.59 billion to Punjab in three equal installments of Rs.14,860 million during FY 2017-18, FY 2018-19 & FY 2019-20 which has been proposed to be recovered as fixed charges on the existing installed capacity of WAPDA Hydroelectric 6,902 MW during FY 2017-18 and expected installed capacity of WAPDA Hydroelectric 8,418 MW during FY 2018-19 & 2019-20.

In view of above, payment of NHP to Punjab will be as under:

NHP Payable to PUNJAB

Regular NHP Rs/kWh 1.1000 Generation of power plants located in Punjab

NHP Arrears during FY 2017-18 based upon 6,902 MW capacity

1st Installment of Arrear

(Rs.38,120 million)	Rs/kW/Month	920.506	6 months from 1 st July 2017 to 31 st Dec 2017.
FY 2016-17 (Rs.9,526 million)	Rs/kW/Month	115.015	1 st July 2017 to 30 th June 2018
FY 2017-18 (Rs.14,860 million)	Rs/kW/Month	179.417	1 st July 2017 to 30 th June 2018

NHP Arrears during FY 2018-19 and FY 2019-20 based upon 8,418 MW capacity

FY 2018-19 (Rs.14,860 million)	Rs/kW/Month	147.105	1 st July 2018 to 30 th June 2019
FY 2019-20 (Rs.14,860 million)	Rs/kW/Month	147.105	1 st July 2019 to 30 th June 2020



8.5 - Water Usage Charges Payable to AJK

In past WAPDA Hydroelectric has been making payment of Water Usage Charges (WUC) to AJK as agreed in the MoU signed at the time of Mangla Dam Raising Project @ Rs.0.15 per kWh on generation of power from Mangla Power Station in line with the GoP Power Policy 2002. Now in the GoP Power Policy 2015, the rate of WUC has been revised and enhanced to Rs.0.425 per kWh (**Annex-IX**). It is therefore proposed that, rate of WUC payable to AJK on generation from Mangla Power Station during FY 2017-18 may be revised accordingly as under:

WUC to AJK during FY 2017-18 Rs/kWh 0.425 Generation from Mangla Power Station

8.6 - IRSA Charges

Ministry of Water & Power vide S.R.O. (1)/2011 dated 25th August 2011 has levied IRSA Charges at the rate of Rs.0.005 per kWh for managing water for hydro power generation to be paid by WAPDA which were kept at the same rate vide and S.R.O. (1)/2017 dated 10th Feb 2017. Therefore, rate of IRSA Charges during FY 2017-18 would be:

IRSA Charges during FY 2017-18 Rs/kWh 0.005 Hydropower generation of WAPDA

8.7 -


Cost Plus Hydel Levies Margin for FY 2017-18			
Regular Hydel Levies (From 1st July 2017 to 30th June 2018)			
IRSA Charges	(Rs/kWh)	0.005	On Total Generation of WAPDA Hydroelectric
Water Use Charge	(Rs/kWh)	0.425	On generation from Mangla
NHP Regular (KP)	(Rs/kWh)	1.10	On generation of Power Plants located in KP
NHP Regular (Punjab)	(Rs/kWh)	1.10	On generation of Power Plants located in Punjab
NHP Arrears to KP during FY 2017-18 Based upon 6,902 MW Capacity			
FY 2015-16 (Rs.9,298 million)	(Rs/kW/M)	112.262	1 st July 2017 to 30 th June 2018
FY 2017-18 (Rs.15,000 million)	(Rs/kW/M)	181.107	1 st July 2017 to 30 th June 2018
Mark-up Cost of Loan of Rs.25 Bln Based upon 6,902 MW Capacity			
Fixed Charges	(Rs/KW/M)	17.435	1 st July 2017 to 30 th June 2018
NHP Arrears to Punjab during FY 2017-18 Based upon 6,902 MW Capacity			
1st Installment of Arrear (Rs.38,120 million)	(Rs/kW/M)	920.506	6 months (1 st July 2017 to 31 st Dec 2017)
FY 2016-17 (Rs.8,623 million)	(Rs/kW/M)	115.015	1 st July 2017 to 30 th June 2018
FY 2017-18 (Rs.14,860 million)	(Rs/kW/M)	179.417	1 st July 2017 to 30 th June 2018
NHP Arrears Payments From FY 2018-19 Onwards Based upon 8,418 MW Capacity			
NHP Arrears to KP during FY 2018-19			
FY 2018-19 (Rs.15,000 million)	(Rs/kW/M)	148.491	1 st July 2018 to 30 th June 2019
NHP Arrears to Punjab during FY 2018-19 and 2019-20			
FY 2018-19 (Rs.14,860 million)	(Rs/kW/M)	147.105	1 st July 2018 to 30 th June 2019
FY 2019-20 (Rs.14,860 million)	(Rs/kW/M)	147.105	1 st July 2019 to 30 th June 2020



Chapter-9

Relief Sought

This petition seeks determination to approve the revised tariff for FY 2017-18 effective from 1st July 2017 as requested at **Para-7.1 & 8.7.**


(Anwar-ul-Haq)
General Manager Finance (P)
WAPDA, Wapda House, Lhr.

ANNEXURES

<i>Annexure-I</i>	WAPDA Authority resolution dated 20 th March, 2017
<i>Annexure-II</i>	CCI decision # (i) of Case No.CCI.1/1/2016 dated 29 th February 2016
<i>Annexure-III</i>	CCI decision on Case No.CCI.7/3/2016 dated 16 th December 2016
<i>Annexure-IV</i>	ECC decision dated 11 th January, 2017
<i>Annexure-V</i>	Notification dated 7 th March 2016
<i>Annexure-VI</i>	Ministry of Water & Power notification dated 24 th June 2016
<i>Annexure-VII</i>	MoW&P directions for arrangement of 25 billion loan for payment to KP
<i>Annexure-VIII</i>	Promissory Note in the favor of Government of Punjab dated 10 th January 2017
<i>Annexure-IX</i>	Extracts of Power Generation Policy-2015.
<i>Annexure-X</i>	Affidavit





Subject: - Petition for Revision of Tariff for FY 2017-18 for bulk supply of Power from WAPDA Hydel Power Stations.

The Revenue Requirement for FY 2017-18 has been significantly increased from those of determined by NEPRA for FY 2015-16. This necessitates to file tariff revision petition in NEPRA as per NEPRA Tariff Standard & Procedure Rules 1998.

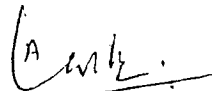
WAPDA Authority is therefore requested to please allow GM Finance (Power) to file petition for revision of tariff to NEPRA for FY 2017-18. The Authority is also requested to authorize following officers of WAPDA to submit and sign individually or jointly, the document necessary in support of this petition and appear before NEPRA and represent WAPDA.

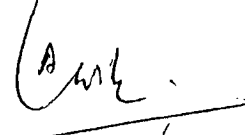
1. GM Finance (Power)
2. GM (Hydel Operation)
3. GM (Hydroplaning)
4. DG Law

Member (Finance) ~~(Additional Charge)~~

Member ~~(Power)~~

Chairman WAPDA ~~(Additional Charge)~~


(Anwar-ul-Haq) 20/3/17
GM Finance (Power)


B. Q. Inayat
B. Q. Inayat 20/3/17

Case No.CCI. 1/1/2016 Dated 29.02.2016	Status Review of Important Decisions of the CCI meeting held on March 18, 2016
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ITEM #1(vii): AMENDMENT IN INDUS RIVER SYSTEM AUTHORITY (IRSA)
ACT, 1992

DECISION

Following decisions were made:-

- i) The CCI gave its concurrence to the MoU signed between Government of Pakistan and Government of Khyber Pakhtunkhwa on 25th February 2016 specially directing WAPDA to file a Tariff Petition as agreed in the MoU.
- ii) The Government of Khyber Pakhtunkhwa will present the new PC-I of the "Chashma Right-Bank Lift Irrigation Canal" project with 65% and 35% contribution by the Federal Government and Government of Khyber Pakhtunkhwa respectively. The Government of Khyber Pakhtunkhwa will be responsible for the O&M of this project.
- iii) The Government of the Punjab will submit their claim to Ministry of Water and Power for consideration in the light of said MoU.



Memorandum of Understanding

Between

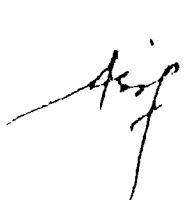

Government of Pakistan and Government of Khyber
Pakhtunkhwa

A meeting was held today under the Chairmanship of the Finance Minister on pending issues between Government of Pakistan and Government of Khyber Pakhtunkhwa (KPK). The Chief Minister, KPK represented KPK in the meeting along with his team. The list of participants is annexed.

The two governments held deliberations on the pending issues requiring resolution and reached an understanding in this regard.

This Memorandum of Understanding (MOU) has, therefore, been agreed between the Government of Pakistan, represented by the Minister for Water & Power and the Government of Khyber Pakhtunkhwa (KPK), represented by the Chief Minister in order to record decisions mutually agreed in the meeting for implementation by the Government of Pakistan under due process and as per the Rules of Business:

1. **Net Hydel Profit (NHP):** (a) The uncapped NHP, as determined and transmitted from NEPRA, would be notified immediately by Ministry of Water & Power;
(b) A total amount of Rs.70 billion has been agreed upon on account of arrears of uncapped NHP after reconciliation of





3
mutual claims in the power sector between the two Governments as full and final settlement; and,

(c) WAPDA, after seeking concurrence of CCI through the Ministry of Water & Power, would file a tariff petition for recovery of the arrears in four installments as follows: (i) Rs.25 billion in current fiscal year and (ii) Rs.15 billion each in the next 3 years;

2. **Pehur Hydro Power Project:** The Power Purchase Agreement (PPA) would be signed by CPPA-G latest by 31-3-2016 duly incorporating a mechanism for recovery of outstanding amounts;
3. **Allocation of Gas for Power Generation:** The Government of Pakistan would allocate 100 MMCFD gas to the Government of KPK for use in power generation, either at its own or through partnership with the private sector;
4. **Chashma Right-Bank Lift Irrigation Canal:** The feasibility of the project would be redone by Ministry of Water & Power, Government of KPK in coordination with the Planning & Development Division. The project, when approved, would be financed between Government of Pakistan and Government of KPK in the ratio of 65:35, while the OM and recurring costs of the project would be funded by Government of KPK;
5. **Matters Relating to Workers Welfare Fund (WWF):** The issues of WWF relating to KPK would be attended to and resolved by the Secretary, HRD Government of Pakistan expeditiously.

Asif

Pervez

MDR




4

This MOU, accordingly, is signed on this day, twenty-fifth of February, two thousands and sixteen in Islamabad in the presence of Minister for Finance, Revenue, Economic Affairs, Statistics and Privatization.


Khawaja Mohammad Asif
Minister for Water & Power


Pervaz Khattak
Chief Minister, KPK

In Witness

Senator Mohammad Ishaq Dar
Minister Finance, Revenue,
Economic Affairs, Statistics,
and Privatization

Case No.CCI.7/3/2016 Settlement of Net Hydel Profit (NHP) Issue
Dated 16th Dec, 2016 between WAPDA and Government of Punjab.

DECISION

The Council considered the Summary dated 28th November, 2016 submitted by Ministry of Water & Power on settlement of Net Hydel Profit (NHP) issue between WAPDA and Government of Punjab and approved the proposals contained in para 3 of the Summary as reproduced below :-

- GoPb claim of Rs.82.71 billion as arrears of NHP, duly endorsed by WAPDA will be the full and final settlement of GoPb claim (as on June 2016).
- To settle Rs.38.12 billion, WAPDA would issue irrevocable promissory note of one year duration to GoPb by December 31, 2016. The issuance of this promissory note will not be contingent upon tariff.
- The balance Rs.44.59 billion will be paid in three equal instalments after tariff determination by CCINEPRA as follows;
 - Rs.14.86 billion in FY 2017-18
 - Rs.14.86 billion in FY 2018-19
 - Rs.14.86 billion in FY 2019-20
- WAPDA would file a Tariff petition for recovery of the above arrears.
- Payment of NHP to Government of Punjab (@ 1.10 per unit on the analogy of Government of KPK, generated from Hydel Power Station located in Punjab for the FY 2016-17 and onwards.

No. PF-06(17)2016 -17

Islamabad, the 23rd January 2017

Subject: - **SETTLEMENT OF NET HYDEL PROFIT (NHP) ISSUE BETWEEN WAPDA AND GOVERNMENT OF PUNJAB (GOPB) BASED ON CCI DECISION - ISSUANCE OF GOP GUARANTEE / LETTER OF COMFORT**

I am directed to state that a Summary on "Settlement of Net Hydel Profit (NHP) issue between WAPDA and Government of Punjab (GoPB) based on CCI decision - Issuance of GoP Guarantee / Letter of Comfort" was forwarded to the ECC of the Cabinet for consideration / approval. ECC of the Cabinet in its meeting held on 11th January 2017 considered the Summary and approved the proposal contained in para 3 of the summary. Relevant paras of the summary and decision of ECC of the Cabinet is reproduced as under:

2. **Para "3" of Summary submitted to the ECC of the Cabinet on 10.01.2017**

3. In view of aforesaid, approval of the ECC of the Cabinet is solicited for issuance of letter of Comfort/ GoP guarantee amounting to Rs. 38.12 billion by Finance Division to WAPDA for settlement of Net Hydel Profit claims of GoPb.

ECC of the Cabinet decision No.ECC-06/02/2017 -dated 11.01.2017

The ECC of the Cabinet considered the Summary dated 10th January 2017 submitted by Ministry of Water & Power regarding "Settlement of Net Hydel Profit (NHP) issue between WAPDA and Government of Punjab (GoPB) based on CCI decision - Issuance of GoP Guarantee / Letter of Comfort" and approved the proposal contained in para 3 of the Summary as per decision of Council of Common Interests (CCI) vide case No. 07/03/2016 dated 16 December 2016.

II. The ECC of the Cabinet also directed Ministry of Water & Power to ensure that the said settled amount is recovered through tariff adjustment, and to ensure that WAPDA fulfills its obligations to the lender.

3. The decision of the ECC of the Cabinet is hereby communicated for information and further necessary action. Further you are required to submit implementation report to this Ministry at the earliest.

(Muhammad Farhan)
Section Officer (PF)
Tele: 9209213

✓ The Chairman WAPDA,
WAPDA House
Lahore

For Information:

1. The Secretary Finance Division Islamabad
2. The Chief Secretary, Government of Punjab, Lahore
3. The Secretary, Finance department, Government of Punjab, Lahore
4. The Secretary, Energy Department, Government of Punjab, Lahore
5. The Chief Executive Officer, Central Power Purchasing Agency, Guarantee Ltd. Islamabad

CC:

1. PSO to Secretary Ministry of Water and Power.
2. PS to Additional Secretary, Ministry of Water & Power
3. PA to Joint Secretary (PF), Ministry of Water and Power

Government of Pakistan
Ministry of Water & Power

Islamabad, the March 7, 2016

NOTIFICATION

S.R.O. ^{PII} (I)/2016.- In pursuance of sub-section (4) of section 31 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (XL of 1997), and in supersession of its Notification No. S.R.O 138(I)/2014, dated the 27th February, 2014, the Federal Government is pleased to notify the NEPRA's approved tariff regarding bulk supply tariff for WAPDA hydroelectric as under, namely:-

TARIFF

Regular Tariff	Rs/kWh	Applicability (FY 2016)
Hydel related charges		
IRSA Charges	0.0050	Total of generation of WAPDA Hydroelectric
NHP	1.1000	Generation of power plant located in KPK
Water Use Charge	0.1500	Mangla's generation
Variable Cost	0.0903	Total generation
	Rs/kW/Month	
Fixed Charges	657.4146	Total generation capacity
Recovery Of Revenue Gap		
Fixed Charges	Rs/kW/Month	134.5769
Variable Charges	Ps /kWh	1.848

1. The above tariff i.e. Regular Tariff and Recovery of Revenue Gap, is applicable for a period of one year from date of its notification by GoP, after which the regular tariff as indicated above will be effective and the tariff to recover the revenue will cease to exist.
2. Any over or under recovery of cost or revenue requirement due to factors beyond control of the Petitioner will be adjusted, after due consideration by the Authority, at the time of next tariff determination.

[NO PII-01-(04)/2010]

S. M. Ahmed
(Syed Mateen Ahmed)
Section Officer (Tariff)

Government of Pakistan
Ministry of Water & Power

Islamabad, the June 24th, 2016

NOTIFICATION

S.R.O. ⁵⁷⁰ (I)/2016.- In pursuance of sub-section (4) of section 31 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (XL of 1997), the Federal Government is pleased to amend the following in its Notification No S.R.O 191(I)/2016 dated: March 07, 2016 namely:-

In the heading of TARIFF, after para 2, the following para may be added namely:-

- 3 The petition for modification of tariff filed by WAPDA Hydroelectric is partially accepted and following additional tariff is hereby assessed for WAPDA hydroelectric on the basis of expected installed capacity of 6902.4 MW. This tariff would be subject to adjustment in case there is any change in expected installed capacity of 6902.4 MW during the respective applicable period.

WAPDA Hydro Electric Tariff	Rs/kW/Month	Applicability
NHP payable to KPK for FY 2016 (Rs 25 billion)	301.8274	12 months from the date of notification
NHP payable to KPK for FY 2017 (Rs 15 billion)	181.0964	12 months from the date of notification
NHP payable to KPK for FY 2018 (Rs 15 billion)	181.0964	July 01, 2017 to June 30, 2018
NHP payable to KPK for FY 2019 (Rs 15 billion)	181.0964	July 01, 2018 to June 30, 2019

[NO PII-01-(04)/2010]

S. M. T.
(Syed Mateen Ahmed)
Section Officer (Tariff)

H.M.M.

H/T: Armar - ul - 6/1/17st
Government of Pakistan
Ministry of Water and Power
Power Coordination Policy & Finance Wing

1/5
MOST IMMEDIATE

Memorandum
No. 7072
Date: 28/3/2016
WAPDA

Subject:

**MEMORANDUM OF UNDERSTANDING BETWEEN GOVERNMENT OF PAKISTAN
AND GOVERNMENT OF KHYBER PAKHTUNKHWA FOR RESOLUTION OF
PENDING ISSUES- COUNCIL OF COMMON INTERESTS (CCI) DECISION**

Kindly refer to the subject noted above and to inform that Finance Division vide letter No.1(11)CF-1/2011-12-224, dated 7.3.2016 has conveyed that a meeting was held on 25th February, 2016 under the Chairmanship of the Finance Minister on pending issues between Government of Khyber Pakhtunkhwa. In order to record decisions mutually agreed in the meeting, the MoU was signed between Government of Pakistan and Government of Khyber Pakhtunkhwa which is enclosed.

2. The Council of Common Interests (CCI) vide case No.1/1/2016 dated 28.02.2016 gave its concurrence to the MoU signed between Government of Pakistan and Government of Khyber Pakhtunkhwa on 25th February 2016, specially directing WAPDA to file a tariff petition as agreed in clause 1 (c) of the MoU.

3. Subsequent to the meeting with the Finance Minister and in view of the timelines agreed in the MoU, it was decided that in order to build Rs.25 billion in the tariff petition, WAPDA may take up a loan of the same amount and subsequently take the amount of principal and servicing of the loan in the tariff petition. Further, a summary to CCI may be drafted to include the financial costs incurred in taking up the loan of Rs.25 billion in the settled amount of Rs. 70 billion.

4. In view of the above mentioned decision of CCI, WAPDA is requested to take further necessary actions under intimation to this Ministry and Finance Division on urgent basis.

(Muhammad Farhan)
Section Officer (PF)
Ph# 9209213

The Chairman WAPDA, WAPDA House Lahore
MoWP u.o No PF-06(03)2016- 00 dated 28.03.2016

For Information:

The Secretary, Finance Division, Islamabad
The Joint Secretary (Water), Ministry of Water & Power, Islamabad
The Engineering Adviser (Power), Ministry of Water & Power, Islamabad

CC

- PS to Minister for Water and Power
- SPS to Secretary, Water and Power.
- PS to Additional Secretary, Water and Power
- PS to Joint Secretary (Power Resources), Water and Power

DGFLR

PC SPK S/10/17

Jan. 01 2004 12:01PM

FAX NO. : 92 51 9203187

FROM: WATER POWER

45

D.G. Finance (Power)

Diary No. 2754

Date: 19/4/16

Government of Pakistan
Ministry of Water and Power
Power Coordination Policy & Finance Wing

MOST IMMEDIATE

Member (Finance)
No. 2322
Date: 18-4-16
WAPDA

Subject: MEMORANDUM OF UNDERSTANDING BETWEEN GOVERNMENT OF PAKISTAN AND GOVERNMENT OF KHYBER PAKHTUNKHWA FOR RESOLUTION OF PENDING ISSUES - COUNCIL OF COMMON INTERESTS (CCI) DECISION.

Kindly refer to this Ministry's letter of even no. dated 28-03-2016 on the above subject whereby Council of Common Interests (CCI) decision No. 1/1/2016 dated 29.2.2016 along with directions of the Federal government for further processing of the case were communicated.

2. Despite lapse of considerable time, WAPDA has shown no positive progress for the implementation of the CCI decision, which is a matter of great concern for this Ministry. Notwithstanding knowing a time bound case, WAPDA vide letter No MF/25/432-33 dated 8-04-2016 asked allow to file supplementary tariff petition FY 2015-16 although knowing the standard Rules and Regulation under which the tariff petitions are filed. Further, WAPDA officials also had no meeting with the Ministry of Finance for financing arrangement, despite clear instructions.

3. In view of the above mentioned decision of CCI, it is requested to instruct concerned department of WAPDA to take further necessary actions under intimation to this Ministry and coordinate with the Ministry of Finance (Debt Office) for arrangement of the loan and financing on urgent basis. It is also advised again that a summary of ECC, for anticipatory approval be sought, to cover the scope of financing arrangements and cost. It is expected that summary for ECC will be moved by 15th of April, 2016 and by that time approval is received; all the submission of tariff petition and arrangement of loan will be finalized.

(Signature)
(M. Zargham Eshaq Khan)
Joint Secretary (PF)
Tele: 9203087

✓ Chairman WAPDA, WAPDA House, Lahore.
MoWP U.O. No. PF-6(3)/2016-88 dated 12-04-2016.

For information:-

- The Secretary, Finance Division, Islamabad.
- The Joint Secretary (Water), Ministry of Water & Power, Islamabad.
- The Engineering Adviser (Power), Ministry of Water and Power, Islamabad.

CC:

✓
✓
✓

PS to Minister for Water and Power
SPS to Secretary, Water and Power
PS to Additional Secretary, Water and Power

1664
Diary No. 28-04-16
Date: 28-04-16
Power Planning & Control Cell
WAPDA House, Lahore

(Signature)
DGP

Re Put up supply: S

19/04/16.

Added-II

(Signature)
DGP

(Signature)
21/4/16

20/4/16

46

Government of Pakistan
Ministry of Water and Power
Power Coordination, Policy and Finance Wing

No. 06(03-NHP)2011-KPK

Islamabad, the 20th May 2016

**PROPOSED COMMERCIAL LOAN OF RS.25 BILLION FOR PAYMENT OF NET HYDEL
PROFIT ARREARS TO GOVERNMENT OF KHYBER PAKHTUNKHWA**

The undersigned is directed to state that a Summary on "Proposed Commercial Loan of Rs. 25 billion for payment of Net Hydel Profit arrears to Government of Khyber Pakhtunkhwa" was forwarded to the ECC of the Cabinet for consideration / approval. ECC of the Cabinet in its meeting held on 07th May 2016 considered the Summary. Relevant para of the Summary and decision of the ECC of the Cabinet is reproduced as under:

2. Para "7" of summary submitted to the ECC of the Cabinet on 05.05.2016

7. In view of aforesaid and for implementation of the CCI decision, following is submitted for the consideration of the ECC:

- Allow WAPDA to raise loan of Rs.25 billion from local banks under Sovereign Guarantee of Government of Pakistan for payment of NHP arrears to GoKPK during the current fiscal year 2015-16.
- The amount of settlement be revised as Rs 72 billion, with WAPDA, would file a tariff petition for recovery of the arrears in four installments as follows: (i) Rs.27 billion in current fiscal year and (ii) Rs. 15 billion each in the next 3 years
- Present the revision in settlement amount and recovery of arrears for ratification of the CCI in its forthcoming meeting.

ECC of the Cabinet decision No.ECC-56/09/2016 -dated 07.05.2016 - Proposed Commercial Loan of Rs. 25 billion for payment of Net Hydel Profit arrears to Government of Khyber Pakhtunkhwa

The ECC of the Cabinet considered the Summary dated 05th May 2016 submitted by Ministry of Water & Power regarding "Proposed Commercial Loan of Rs. 25 billion for payment of Net Hydel Profit arrears to Government of Khyber Pakhtunkhwa" and approved the proposal contained in para 7(i) of the summary.

3. The decision of the ECC of the Cabinet is hereby communicated for information and further necessary action. Further you are required to submit implementation report to this Ministry at the earliest.

(Muhammad Farhan)
Section Officer (PF)
Tele: 9209213

✓ The Chairman,
WAPDA, WAPDA House Lahore
Islamabad

For information:

The Secretary Finance Division Islamabad
The Chief Executive Officer, Central Power Purchasing Agency, Guarantee Ltd. Islamabad
The Chief Financial Officer, PHPL, Islamabad

CC:

1. PSO to Secretary Ministry of Water and Power
2. PS to Additional Secretary, Ministry of Water & Power
3. PA to Joint Secretary (PF), Ministry of Water and Power

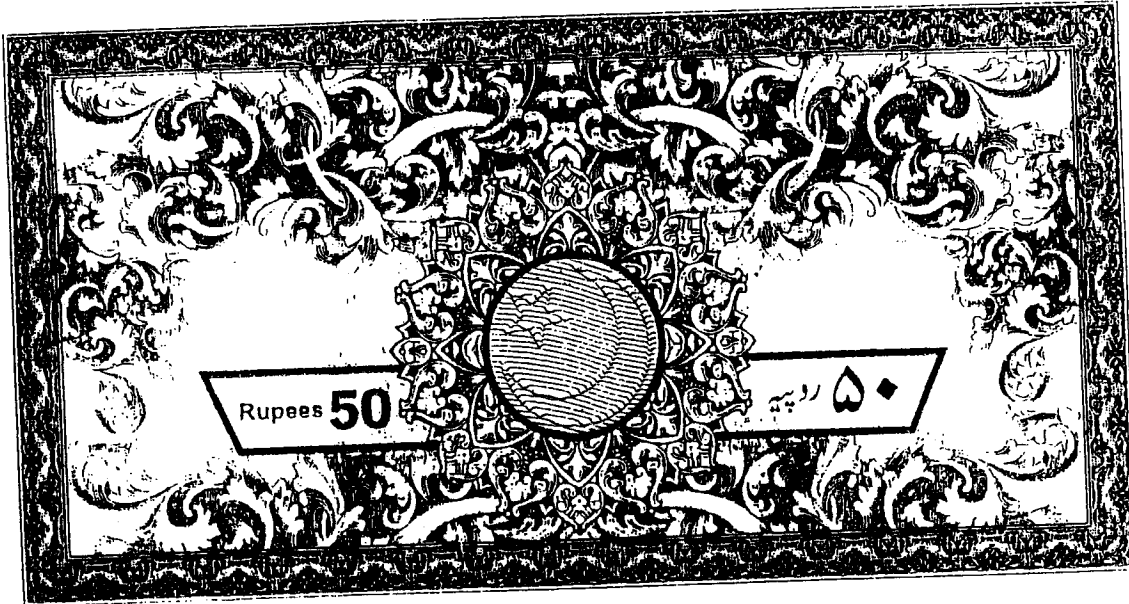
PF (W&P)

WAPDA

WAPDA

WAPDA

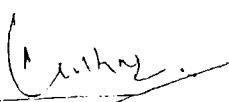
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Promissory Note

Issue Date: 10.01.2017
 Maturity Date: 31.12.2017
 Place of Issue: Lahore
 Amount (in figures): 38.12 billion
 Amount (in Words): Thirty Eight billion, One Hundred & Twenty Million only

- 1 The Pakistan Water & Power Development Authority (WAPDA), an autonomous statutory body established under WAPDA Act, 1958, having its headquarter / main office at Wapda House, Shahrah-e-Quaid-e-Azam, Lahore, acting through its Member (Finance) duly authorized, hereby unconditionally and irrevocably promises, to pay PKR 38.12 billion (Pakistani Rupees Thirty Eight Billion One Hundred and Twenty Million only) to the order of Governor of the Punjab acting through Secretary, Government of the Punjab, Finance Department ("GoPb") on 31.12.2017.
- 2 This amount is due and payable to GoPb as the first installment of arrears of Net Hydel Profits for the period from Financial Year 2004-05 to Financial Year 2015-16 under Article 161 (2) of the Constitution of Pakistan 1973 as per CCI Division No 07/03/2016 dated 16 12.2016
- 3 This Promissory Note carries an unconditional and irrevocable sovereign guarantee of the Government of Pakistan to make the payment in case WAPDA fails to pay the full amount on the due date i.e. 31.12.2017.
- 4 This Promissory Note is a negotiable instrument in accordance with The Negotiable Instruments Act, 1881


 (Anwar-ul-Haq)
 Member (Finance) WAPDA



ATTESTED

Pakistan
Water and Power Development Authority

MEMBER FINANCE

705 - Wapda House
Lahore

Tel: 042-99202990

Fax: 042-99202484

No: GMFP/WBC/NHP/GoPb/40/377-99

Date: 06/02/2017

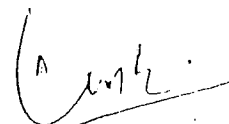
Mr. Hamed Yaqoob Sheikh,
Secretary Finance,
Govt. of Punjab,
Civil Secretariat,
Lahore.

Subject: PROMISSORY NOTE

This is in continuation to our letter dated 10.01.2017 on subject cited above, in pursuance to ECC decision dated 11.01.2017 for "issuance of letter of comfort/GoP guarantee amounting to Rs.38.12 billion by Finance Division to WAPDA for settlement of NHP claims of GoPb", kindly find enclosed amended "Promissory Note" duly backed by GoP Guarantee in original against settlement of first installment of NHP arrears of Rs.38.12 billion to the GoPb.

Moreover, in compliance to ECC decision dated 11.01.2017, WAPDA vide letter dated 02.02.2017 has already requested Ministry of Finance for issuance of "Letter of Comfort" to GoPb accordingly.

DA/As Above.


(Anwar ul Haq)
Member Finance

CC to:-

- 1- The Secretary, Ministry of Water & Power, GoP Islamabad.
- 2- SO to Chairman WAPDA, WAPDA House, Lahore.

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Power Generation Policy 2015

April 2015

- vii. The hydropower projects shall be implemented on BOOT basis or any other mode and the term of concession period for the private sector will be 30 years after which the project will be transferred to the Provincial Government/AJK and Gilgit-Baltistan (as the case may be) for Pak Rupee 1.

5.3 Water Use Charge (WUC)

- i. WUC will be paid @ Rs. 0.425/kWh by the private sector hydropower projects to the province where the project is located.
- ii. The rate of WUC will be reviewed every five years by the GOP in order to determine if an increase in WUC is necessary.
- iii. For projects located in more than one provincial jurisdiction, the sharing of WUC will be decided among the stakeholders on case to case basis.
- iv. For Public Sector hydropower projects, concerned province in which the hydro electric station is situated shall be paid Net Hydel Profits as per the relevant provision of Constitution of Pakistan.

5.4 Hydrological Risk

The power purchaser will bear the risk of availability of water for hydro power projects, by making payment of fixed monthly CPP component of the tariff to the project company in accordance with the monthly average hydrology. The Security Package Documents will specify arrangements to monitor and record water flows.

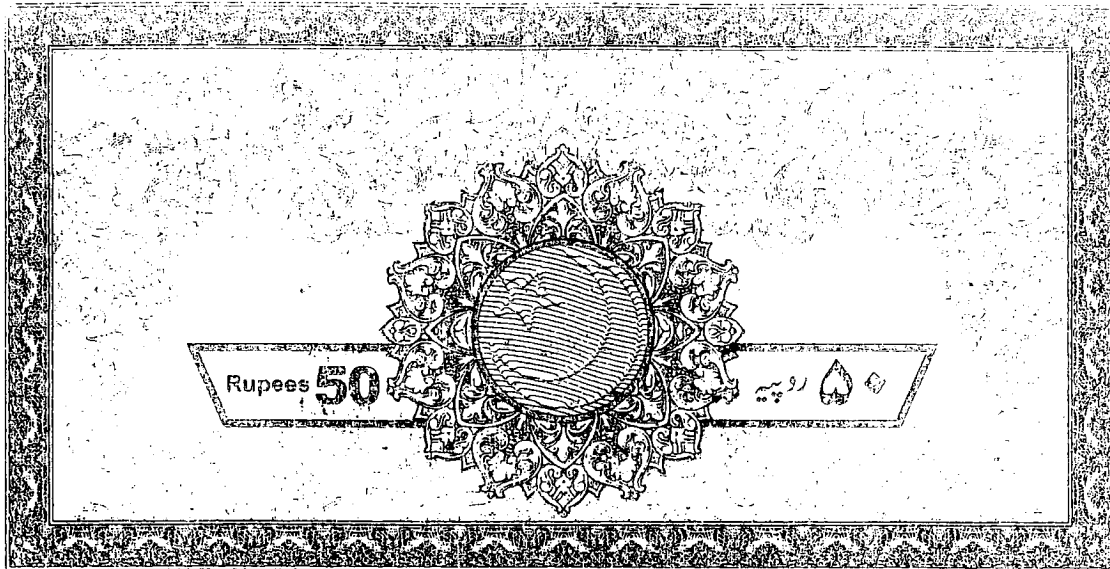
6. THERMAL POWER PROJECTS

In order to diversify fuel mix and induct both base load and peaking power plants, high efficiency, environmentally compliant, indigenous and imported fuels based projects will be encouraged. Thermal power projects may be processed and awarded under any one of the following modes.

6.1 Solicited Projects

Generally the projects may be processed and awarded through International Competitive Bidding (ICB) and solicitation for proposals based on upfront tariff. For this purpose, following modes may be adopted:

- i. ICB based on lowest evaluated levelized tariff or solicitation of discount on the upfront or benchmark tariff determined by NEPRA; or
- ii. Proposals submitted by the Sponsors in response to invitation of Expression of Interest where NEPRA has announced Upfront Tariff.



BEFORE THE NATIONAL ELECTRIC POWER
REGULATORY AUTHORITY

AFFIDAVIT

I, Anwar ul Haq, General Manager Finance (Power) of WAPDA, 713 WAPDA House, Lahore, being duly authorized representative / attorney of WAPDA Hydroelectric, hereby solemnly affirm and declare that contents of the accompanying petition/ application # GMF/ CPCC/ Tariff/4525/1127 dated 21st March, 2017 including all supporting documents are true and correct to the best of my knowledge and belief and that nothing has been concealed. I also affirm that if any additional information and documentation is required by NEPRA in connection with tariff petition will also be provided by me.

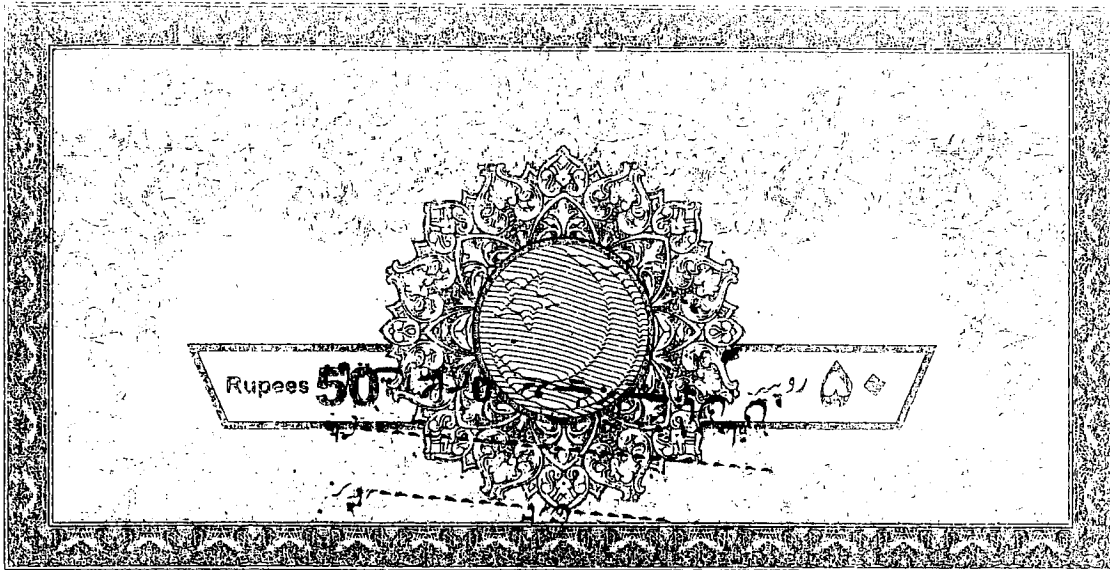
DEPONENT


(Anwar ul Haq)
General Manager Finance (Power)



ATTESTED

ATTESTED
Oath Commissioner
Lahore



-- Page 2 --

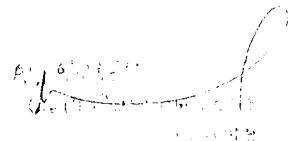
Verified on oath this 21st day of March, 2017 that the contents hereof are true and correct to the best of my knowledge and belief and nothing has been concealed.

DEPONENT


(Anwar ul Haq)
General Manager Finance (Power)



ATTESTED


Attesting Officer