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PART II

Statutory Notifications (S. R. O.)

GOVERNMENT OF PAKISTAN
NATIONAL ELECTRIC POWER REGULATORY AUTHORITY

NOTIFICATION

Islamabad, the 27th May, 2022

S. R. O. 660(I)/2022.—In pursuance of Sub-Section 7 of Section 31 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (XL of 1997), NEPRA hereby notifies the Determination of the Authority in the matter of Tariff Petition filed by WAPDA Hydroelectric for FY 2020-21 in Case No. NEPRA/TRF-530/WAPDA-2020.

2. While effecting the Determination, the concerned entities including Central Power Purchasing Agency Guarantee Limited (CPPAGL) shall keep in view and strictly comply with the orders of the courts notwithstanding this Determination.

[No. NEPRA/TRF-530/8/198.]

SYED SAFEER HUSSAIN,
Registrar.

239 (1—52)

Price : Rs. 80.00

[7907(2022)/Ex. Gaz.]



DETERMINATION OF THE AUTHORITY IN THE MATTER OF
TARIFF PETITION FILED BY WAPDA HYDROELECTRIC FOR FY 2020-21

**DETERMINATION OF THE AUTHORITY IN THE MATTER OF TARIFF PETITION
FILED BY WAPDA HYDROELECTRIC FOR FY 2020-21**

1. WAPDA Hydroelectric (hereinafter referred to as "the Petitioner" or "WAPDA") filed a tariff petition for determination of Bulk Supply tariff for FY 2020-21 for sale of power to NTDC/CPPA, pursuant to NEPRA Tariff Standards and Procedure) Rule, 1998. The Petitioner submitted that the projected change in its revenue requirement for FY 2020-21 has been worked out on the basis of:
 - The audited statement of FY 2016-17, 2017-18, 2018-19
 - Actual Number for eight (8) months (Jul-Dec) for FY 2019-20,
 - Projected numbers for last four months (Jan-Jun) of FY 2019-20,
2. Following is a comparison of the tariff determined by NEPRA for FY 2017-18 and the tariff proposed by the Petitioner for FY 2020-21.

Annual Revenue Requirement of WAPDA		NEPRA Determined	Claimed*
		2017-18	2020-21
O&M	(Mln Rs)	14,092	18,126
Depreciation	(Mln Rs)	5,917	7,656
Ijara Rental (Sukuk Bonds Repayment)	(Mln Rs)	2,589	1,690
Return on Investment - Power Stations	(Mln Rs)	28,176	29,543
Return on Investment - Power Projects	(Mln Rs)	12,374	23,294
Other Income	(Mln Rs)	(366)	(698)
Sub Total	(Mln Rs)	62,782	79,610
Regulatory Revenue Gap	(Mln Rs)	8,567	52,891
Mark-up on NHP Loans	(Mln Rs)	-	11,024
Total Revenue Requirement - WAPDA	(Mln Rs)	71,349	143,525
	Rs/kWh	2.12	4.7
Cost Plus Hydel Levies Margin		NEPRA Determined	Claimed
			2020-21
Hydel Levies - Regular			
Govt. of KP	(Mln Rs)	21,825	21,217
Govt. of Punjab	(Mln Rs)	10,002	9,539
Govt. of AJ&K (WUC)	(Mln Rs)	899	5,753
IRSA	(Mln Rs)	168	151
Total Regular Hydel Levies	(Mln Rs)	32,894	36,659
Arrears of NHP			
Govt. of KP	(Mln Rs)	24,297	618
Govt. of Punjab	(Mln Rs)	61,965	5,842
Total Arrears of NHP	(Mln Rs)	86,262	6,460
Total Hydel Levies (Regular + Arrears)	(Mln Rs)	119,156	43,119
	Rs/kWh	3.55	1.43
Estimated Generation (Net GWh)		33,598	30,140
Total Tariff		5.67	6.2

*Subsequently, the Petitioner vide letter dated January 15, 2021 submitted its revised tariff claim which reduced the average combined WAPDA tariff from Rs 7.32 per kWh to Rs 6.20 per kWh.





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PROCEEDINGS

3. Subsequent to the admission of the petition, the salient features of the tariff proposal were published in daily newspapers inviting filing of replies, intervention requests, or comments. It was also decided to conduct an online hearing on November 12, 2020. Notices of hearing and the proposed issues to be discussed and deliberated upon during the hearing were also published in the national newspapers on November 04, 2020. Separate written notices were also sent to provincial Governments seeking their recommendations on November 06, 2020, as required under Section 7 of the NEPRA Act
4. In response to the Notice of admission, intervention request from the Government of KPK and comments from Ministry of Planning Development & Special Initiative were received.

INTERVENTION REQUESTS AND COMMENTS:

5. Intervention request from Govt. of Khyber Pakhtunkhwa Energy & Power Department has been received which was admitted by the Authority on November 13, 2020. Summary of intervention request of Govt. of Khyber Pakhtunkhwa Energy & Power Department is as follows:
 - On magnanimous acceptance of the intervention request in hand, the leave to intervene be allowed, and thereupon after hearing the parties on merit, the Province was allowed NHP at the agreed rate of Rs.1.10 per KWh with 5% annual indexation in NEPRA determination dated 13-11-2015 as an interim arrangement.
 - An MoU was signed between GoKP & GoP on 25-02-2016 allowing NHP.
 - CCI endorsed the MoU and determination of NEPRA on dated 29-02-2016.
 - The 5% indexation is not followed in true letter & spirit.
 - NHP from the hydel projects present in Ex-FATA is not paid.
6. The Ministry of Planning Development and Special Initiatives (Energy Wing) ("M of PD&SI") also submitted detailed issue wise comments on November 12, 2020 which was forwarded to the Petitioner for the response. The Petitioner response in the matter was received December 04, 2020. These comments and replies of the Petitioner are discussed in the respective issue;

HEARING

7. The hearing in the matter was held on November 12, 2020 which was attended by the representatives of the Petitioner, Government of KPK and other stakeholders and other stakeholders. During the hearing the Authority showed concerns regarding delay in filing the tariff petition after 2-3 years. In response, the Petitioner submitted that the delay was due to late notification of the approved rates however the Petitioner stated that it will try its best to file the next tariff petition timely. On this, the Authority suggested that there should be a clear mechanism where WAPDA hydroelectric submit a tariff petition before the commencement of financial year so that costs are reviewed before it is incurred. During the hearing, the Authority while reviewing the presentation of the Petitioner noted that some of the plants such as Chitral HPP requested cost per KW is prohibitively high which need to be rationalized as such huge cost can't be passed on to consumers. In reply the Petitioner stated that Chitral HPP like other plants are very old and are needed for system stability in that location and in





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addition to that being older plants, employees' retirement benefits are also high. The Authority asserted that such cost being high would be seen and analysed on the test of prudence

ISSUES:

8. Based on the available information, the following issues were framed.
 - i. Whether Petitioner's request for allowance of O&M expense amounting to Rs 15,165 million, Rs 20,136 million, Rs 19,079 million and Rs 19,724 million for FY 2018, 2019, 2020 & 2021 respectively is justified?
 - ii. Whether Petitioner's request for allowance of WACC based return on power stations amounting to Rs 25,468 million, Rs 31,585 million, Rs 37,367 million and Rs 37,163 million for FY 2018, 2019, 2020 & 2021 respectively is justified?
 - iii. Whether Petitioner's request for allowance of WACC based return on investment on power projects amounting to Rs 27,109 million, Rs 22,314 million, Rs 21,500 million and Rs 32,085 million for FY 2018, 2019, 2020 & 2021 respectively is justified?
 - iv. Whether the inclusion of 64% Diamir Basha Dam cost (WACC based return) as claimed by the Petitioner to be made a part of WAPDA Hydroelectric's tariff is justified?
 - v. Whether Petitioner's request for allowance of Depreciation charge and Ijara Rentals amounting to Rs 7,616 million, Rs 9,284 million, Rs 9,433 million and Rs 9,418 million for FY 2018, 2019, 2020 & 2021 respectively is justified?
 - vi. Whether other income claimed to be Rs 1,374 million for FY 2018 and Rs 697 million each for FY 2019 to FY 2021 is justified?
 - vii. Whether Petitioner's request for allowance of Regulatory Gap amounting to Rs 17,675 million, Rs 20,950 million & Rs 23,600 million and for FY 2018, 2019 & 2020 respectively is justified?
 - viii. Whether mark-up on NHP loans amounting to Rs. 11,024 million is justified?
 - ix. Whether the plant wise outages schedule claimed in the petition is justified?
 - x. Whether the claimed capacity of power plants is justified in the absence of Capacity Tests as per PPAs?
 - xi. Whether the current mechanism for allocation of costs/expenses for each of the project into water side and power side is justified?
9. The issue wise detailed discussion is provided as under;

Issue No. i. Whether Petitioner's request for allowance of O&M expense amounting to Rs 15,165 million, Rs 20,136 million, Rs 19,079 million and Rs 19,724 million for FY 2018, 2019, 2020 & 2021 respectively is justified?
10. WAPDA Hydroelectric in its tariff petition has claimed O&M cost for the FY 2016-17 to FY 2020-21. The O&M cost for the FY 2016-17, FY 2017-18, and FY 2018-19 have been claimed based on audited financial statements. The O&M cost for the FY 2019-20 has been claimed based on the actual O&M





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cost of 8 months and the projected cost for the remaining 4 months. For FY 2020-21, the O&M cost has been projected based on O&M cost for FY 2019-20.

11. WAPDA hydroelectric in its earlier tariff petition informed that the operation & maintenance of hydel power stations is carried out through self-arrangement. WAPDA appoints the human personnel and fix their terms of employment by exercising administrative powers conferred under Section 17 & 18 of the WAPDA Act. The manpower strength is reviewed each year keeping in view the functional requirement at the Hydel power stations. Being a fully GoP owned autonomous body, WAPDA has adopted National Pay Scales, therefore the 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 hires additional services in connection with O&M of power plants by observing PPRA Rules.
12. According to the Petitioner, it administers the progress of its projects through establishing an independent project management unit, which is disbanded on completion of the project and handed-over for O&M to another formation. Therefore, the expenditure claimed and traditionally allowed to WAPDA under the head of O&M pertains only to its in-operation stations, and does not pertain to its under-construction/ under-development projects.
13. WAPDA hydroelectric in its tariff petition has submitted that the cost head of O&M expenses comprises Employees' Cost, Repair & Maintenance and Administration Cost.

The Ministry of Planning Development and Special Initiatives (Energy Wing):

The Ministry of Planning Development and Special Initiatives Energy Wing submitted following in this regard;

- R&M Cost is projected to increase to Rs. 1,678 million in 2019-20 from Rs. 832 million in 2018-19 which is a 100% increase, what is the reason for this increase.
- Special R & M of Tarbela Power Station was carried out from FY 2012-13 to FY 2017 under a fixed amount reimbursement agreement with USAID amounting to USD 41.5 million in 2 phases. The regular R&M was also carried out during this period. Despite the special and regular R&M the generation at Tarbela reduced from 15,983 GWh in FY 2015-16 to 10,800 in FY 2020-21 and for Mangla, it reduced from 6,746 GWh during the same period.
- A sum of Rs. 477 million are proposed for surveys and experiments however, no details have been provided. WAPDA may inform what type of survey and experiments were carried out previously and what were the results. It may also be informed whether these were carried out by WAPDA itself or were they outsourced. How these were helpful to WAPDA.

Petitioner's Response

- Tariff Modification Petition was submitted in NEPRA before the close of FY 2019-20 and at that time budgeted Repair and Maintenance expenses of Rs.1,678 million during FY 2019-20 were included. Now actual R&M expenses for FY 2019-20 are available, detail of which will be provided to NEPRA for framing its decision. *(The revised claims of WAPDA on account of R&M now stands at Rs 913 million against previous estimation of 1,678 million for FY 2020.)*





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- Special R&M of Tarbela Power Station was carried out with the grant received under FARA agreement and the expenses were neither claimed nor allowed in tariff.
- Hydel generation depends on the hydrology and water indents allowed by IRSA which varies from year to year. During FY 2015-16 upstream water flows were very high resultantly generation remained exorbitantly higher which cannot be set as standard for the succeeding years with different water flow patterns.
- In FY 2019-20 total actual generation from Tarbela Dam is recorded as 17,344 GWh, comprising 11,858 GWh from generating units of main Tarbela Power Station and 5,486 GWh from T-4th Ext. In this manner despite normal flow year, excess units from Tarbela Dam were produced by strategically utilizing recently commissioned T-4th Ext.
- WAPDA is also working on the upgradation of water intake of Tarbela Power Station ("PS") to ensure maximum flow of water from turbines upon completion resulting in augmenting generation.
- Similarly, WAPDA is also working on upgradation and rehabilitation of old generating units of Mangla Power Station which will be completed in phases during future years. Actual generation from Mangla PS during FY 2019-20 was 4,589 GWh with a plant factor of 52.4% which is quite healthy for a Hydel Power Station by any standard.
- As mandated in WAPDA Act, WAPDA carries out Surveys and Investigations with the approval of GoP, to identify prospective sites for unified and multipurpose development of water and power resources in Pakistan. Identification of prospective sites is necessary for further development and expenses on such studies are of development nature. However, instead of capitalizing, these expenditures are charged in the year of incurrence, as per general accounting practice. NEPRA after due diligence allows survey & investigation expenditures relating to power sector projects only.

14. The Petitioner vide letter dated January 15, 2021, submitted its revised claim as stated earlier. A summary of the O&M amounts claimed by the Petitioner based on the revised claim is given hereunder:

O&M	Projecte d for FY 2020-21	Projecte d for FY 2019-20	Audited for FY 2018-19	Audited for FY 2017-18	Audited for FY 2016-17	Determine d for FY 2017-18	Determined for FY - 2016-17
Employee's Cost	(Rs. in Million)						
Salaries and Wages	5,243	4,993	4,313	3,974	3,399	4,124	3,451
Employees Benefits	838	798	798	1,122	193	895	805
Post-Retirement Benefits	8,009	6,700	5,857	4,493	4,132	4,815	4,309
Sub-Total	14,090	12,491	10,967	9,588	7,724	9,834	8,565
Repair and Maintenance							
Fuel Charges	23	22	30	28	24	57	45
Repair and Maintenance	958	913	832	1,081	804	1,454	1,238
Insurance	56	53	55	53	55	51	50
Consultancy	1	0.1	10	156	3	211	64

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Sub-Total	1,038	988	927	1,317	886	1,773	1,397
Admin Cost							
Dams and Hydrology Monitoring Cost	689	689	944	709	857	478	480
Survey and Experiment	305	291	330	1,563	689	423	276
Power, Gas and Water	454	432	358	302	290	281	289
Management/Authority Overheads	846	806	1,008	1,182	784	636	684
Vehicle Running Expenses	232	221	217	199	188	187	193
NEPRA Fees	148	141	126	102	97	206	240
Other Operating Expenses	324	251	762	203	275	273	222
Sub-Total	2,999	2,832	3,746	4,260	3,181	2,485	2,383
Total	18,126	16,311	15,640	15,165	11,791	14,092	12,345

15. The Petitioner also submitted the plant-wise break-up of the claimed O&M cost. Subsequent paras will discuss the rationale provided by WAPDA for the claimed amounts under each sub-heads and followed by the decision of the Authority;

Employee's Cost (Salaries & Benefits):

16. Employees' salaries & wages from FY 2016-17 to FY 2018-19 are requested on the basis of audited financial statements. The Petitioner has submitted that for FY 2019-20 Salaries and Wages have been worked out on the basis of actual expenses for the first eight (8) months and forecasted expenses during the remaining four (4) months. Salaries and Wages for FY 2020-21 are projected on the basis of sanctioned manpower strength while taking into consideration an increase of 5% over FY 2019-20 to cater for annual increments; Similarly, Employees benefits comprising different allowances are projected for FY 2020-21 with 5% increase over FY 2019-20.
17. The Petitioner in support of its claim has submitted audited accounts for the FY 2016-17, 2017-18 and FY 2018-19. For FY 2019-20 claim, the Petitioner has submitted audited accounts for the quarter ending March 31, 2020, and has also submitted unaudited numbers of salaries and benefits for the FY ending June 2020.
18. In the last determination, the Authority approved plant wise employee's salaries/wages and benefits which collectively amounts to Rs. 4,256 million and Rs. 5,019 million for FY 2016-17 and FY 2017-18 respectively subject to adjustment at actual on the basis of audited accounts of respective years provided the actual costs are less than the budgeted cost requested by the Petitioner.
19. As per the audited annual accounts, the actual cost verified on account of employee salaries and benefits for the FY 2016-17 and FY 2017-18 is given as under:

O&M	Audited FY 2017-18	Audited FY 2016-17
Employee's Cost	Rs. in million	
Salaries and Wages	3,974	3,399
Employees Benefits	1,122	193
Total Salaries and Benefits	5,096	3,592





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20. The overall actual salaries and benefits verified for the FY 2016-17 are Rs. 3,592 million as compared to the approved Rs. 4,256 million and for the FY 2017-18, the actual cost of salaries and benefits are Rs. 5,096 million as compared to the approved Rs. 5,019 million. However, it was noted by the Authority that the overall actual plant wise salaries and benefits (Rs 3,461 million for FY 2017 & Rs 4,804 million for FY 2018) is less than compared to the plant wise budgeted number allowed (Rs 4,256 million FY 2017 & Rs 5,019 million FY 2018) therefore, the lesser of the two number is allowed for each respective financial years.
21. For the remaining financial years under review the following numbers submitted by the Petitioner with regard to the salaries and benefits were analysed from 2019 till 2020:

Description	Unaudited FY 2019-20	Audited FY 2018-19
	Rs. in Million	
Salaries and Wages	4,993	4,313
Employees Benefits	798	798
Total Salaries and Benefits	5,791	5,111
No of Active employees	8,026	8,888
No of pensioners-Post retirement benefits have been disbursed	9,135	8,918
MWs	8,418	8,418

22. While relying on the above information, the Authority has decided to approve the cost as requested for FY 2019 and FY 2020 on account of Salaries and Wages and Employee benefits. For estimating the cost for FY 2021 under the same head, the Petitioner assumed inflation of 5% which is less than the expected inflation of 7.5% assumed by the Asian Development Bank for Pakistan therefore, the lower number is allowed.
23. Based on the discussions in the preceding paragraphs, the following is allowed in respect of employees' salaries, wages, and other benefits as the maximum limit. The salaries and wages projected for the FY 2019-20 and FY 2020-21 will be subject to adjustment at actual on the basis of audited accounts of respective years provided the actual costs are less than the approved cost.

Heads	2020-21	2019-20	2018-19	2017-18	2016-17
	Rs. in Million				
Salaries and Wages	5,243	4,993	4,313	3,973	3,244
Employee Benefits	838	798	798	832	217
Total	6,081	5,791	5,111	4,804	3,461

Post-Retirement Benefits:

24. Employees Retirement Benefits consist of Pension, Medical and Electricity benefits. Employee's retirement benefits from FY 2016-17 to FY 2018-19 is assumed by the Petitioner as per audited financial statements, whereas Retiring Benefits for FY 2019-20 have been projected with a 10% increase over the audited figure of FY 2018-19 by the Petitioner. Due to the non-availability of the actuarial valuation report for FY 2020-21, the retirement benefit for FY 2020-21 has been kept at the level of the provisional figure of FY 2019-20 which will be trued-up in the succeeding tariff petition. Following information has been submitted by the Petitioner under this head;





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Post-Retirement Benefits	Projected for FY 2020-21	Projected for FY 2019-20	Audited for FY 2018-19	Audited for FY 2017-18	Audited for FY 2016-17	Determined for FY 2017-18	Determined for FY 2016-17
Rs. in Million							
Serving and Retired Employees	8,009	6,700	5,857	4,493	4,132	4,815	4,309

25. During the proceedings, the Petitioner was also directed to confirm whether a fund has been formed to support staff retirement benefit expenses. The Petitioner responded that despite less payment by CPPA-G against hydel sales invoices, WAPDA managed to establish Pension Fund to support staff retirement benefits as per IAS-19 during FY 2017-18. Meanwhile, loans taken for advance payment of NHP became due and to avoid the situation of default, WAPDA had to utilize this amount for payment of NHP loans as a last resort. However, the Petitioner affirmed that it will replenish the Pension Fund accordingly upon payment from CPPA-G.
26. The Authority noted that in the last determination, the Petitioner was allowed an amount for post-retirement benefits for the FY 2016-17 and FY 2017-18 subject to adjustment at actual on the basis of audited accounts of the respective years. Accordingly, the following have been allowed to the Petitioner as tabulated below for FY 2017- to FY 2021. The number for FY 2020 and FY 2021 shall be trued-up based on audited financial statements of the respective years in the next tariff petition.

Post-Retirement Benefits	Projected for FY 2020-21	Projected FY 2019-20	Audited FY 2018-19	Audited FY 2017-18	Audited FY 2016-17
Rs in million					
Serving and Retired Employees	8,009	6,700	5,857	4,493	4,132

27. Since the Authority has been allowing provision for the postretirement benefit to the Petitioner, since FY 2016-17 therefore, the Authority is of the opinion that the Petitioner shall ensure to deposit the differential of the amount of provision allowed to the Petitioner vs. the actual payment made by the Petitioner on this account in the post-retirement benefit created by the Petitioner. In case of failure, the Authority may while determining the next tariff petition deduct the differential amount of provision vs. the actual payment and may also charge a certain financial cost as a penalty for the amount retained by the Petitioner.

Repair & Maintenance (R&M):

28. The Petitioner has submitted that 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 carry out 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 to the effect of inflation.
29. The Petitioner has submitted that WAPDA Hydroelectric has managed plant availability factor through timely periodic (annual/Bi-annual) preventive maintenance. Routine Repair and Maintenance "R&M"





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of all Hydel Power Stations has been planned to be carried out during FY 2020-21 in accordance with the recommendations of the manufacturers within the maintenance hours allowed in the PPA.

30. The Petitioner requested the following under Repair and Maintenance (R&M):

Repair and Maintenance	Projected FY 2020-21	Projected FY 2019-20	Audited FY 2018-19	Audited FY 2017-18	Audited FY 2016-17	Determined FY 2017-18	Determined FY 2016-17
Variable Portion	Rs. in Million						
Fuel Charges	23	22	30	28	24	57	45
Repair & Maintenance	958	913	832	1,081	804	1,454	1,238
Total	981	935	862	1,109	828	1,511	1,283
Fixed Portion							
Insurance	56	53	55	53	55	51	50
Consultancy	1	1	10	156	3	211	64
Total	57	54	65	209	58	262	114
Grand Total	1,038	988	927	1,317	886	1,773	1,397

31. The Authority in its earlier determination decided to allow R&M cost on an actual basis. The R&M cost allowed for the FY 2016-17 and FY 2017-18 was subject to adjustment as per actual on the basis of audited accounts for respective years. The actual numbers for FY 2016-17, 2017-18 and FY 2018-19 have been verified from audited accounts for respective years.
32. In view of all the above, it is decided that the amount as claimed by the Petitioner for FY 2020, FY 2021 is allowed subject to adjustment as per actual.

Head	2020-21	2019-20	2018-19	2017-18	2016-17
	Rs. in Million				
Repair & Maintenance	1,038	988	927	1,317	886

Administration costs:

33. The Petitioner has submitted that this cost mainly includes management charges, security contracts, vehicle running costs, hydrology monitoring, and survey and experiment costs are projected with a 5% increase over FY 2019-20 forecasted expenses. The Petitioner has submitted that in the last determination for FY 2017-18 WAPDA has proposed 10% escalation over the preceding year's actual/audited admin expenses but in para-39 of its determination, NEPRA pointed out that the then inflation rate (average of 2016 & 2017) was reduced to 4.25% accordingly NEPRA assessed the reduced admin cost with 4.25% indexation. As per present statistics, the inflation rate (average of 2019 & 2020) is 12% in view above, in the current petition, admin expenses for FY 2019-20 has been projected on the basis of actual expenses for the first eight (8) months and forecasted expenses during the remaining four (4) months and for FY 2020-21, admin expenses have been projected with an overall 5% increase over expenses during FY 2019-20.
34. Following information has been submitted by the Petitioner for the claim of this account;





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Heads	Projected FY 2020- 21	Project ed FY 2019- 20	Audited FY 2018- 19	Audited FY 2017-18	Audited FY 2016-17	Determine d FY 2017-18	Determine d FY 2016-17
Rs. in Million							
Dams and Hydrology Monitoring Cost	689	689	944	709	857	478	480
Survey and Experiment	305	291	330	1,563	689	423	276
Power, Gas, and Water	454	432	358	302	290	281	289
Management/Authority Overheads	846	806	1,008	1,182	784	636	684
Vehicle Running Expenses	232	221	217	199	188	187	193
NEPRA Fees	148	141	126	102	97	206	240
*Other Operating Expenses	324	251	762	203	275	273	222
Sub-Total	2,999	2,832	3,746	4,260	3,181	2,485	2,383

* Other operating expenses include ROA 4% on the assets transferred to WAPDA by provincial Government in 1959, expenses relating to flood damages, crop compensation, compensation for damages/death, demurrage charges, social uplift expenses etc. which are grouped under Sundry Expenses, bad/doubtful debts and foreign exchange fluctuation on retention money in respect of operational powerhouses, Travelling, Advertisement, Legal and professional, Communication, Rent, rates and taxes and other expenses.

35. The Authority allowed plant wise administrative expenses which collectively amounted to Rs. 2,383 million and Rs 2,485 million for FY 2016-17 and FY 2017-18 respectively. These amounts were subject to adjustment at actual provided the actual cost is lower than the determined amount. It was also decided by the Authority that the assessment shall be made between actual vs determined amount which is to be worked out on the basis of taking last year's determined amount with an increment of annual inflation.
36. Accordingly, by comparing plant wise actual expense vs an amount inflated from the last referenced determined amount and taking the lower of two values, the overall admin expense for FY 2017 and FY 2018 works out as Rs 2,375 million and Rs 2,441 million respectively and the same has been allowed.
37. The inflation rate during FY 2018-19 was 7.2%. If the stated inflation rate of 7.2% is applied plant wise to the allowed admin cost for the FY 2017-18, the revised number works out to be Rs. 2,617 million and adding the admin cost (Rs. 335 million) of two HPP namely Tarbela 4th extension and Golen Gol, since transferred to fixed assets in 2018-19, the admin cost for FY 2018-19 works out to be Rs. 2,951 million against Rs 3,746 million requested. The inflation rate for the FY 2019-20 was 8.4%, if this rate is applied on 2018-19 admin cost, the amount for FY 2020 & 21 works out as Rs. 3,197 million and Rs. 3,466 million respectively. Since the claimed amounts for the FY 2020 & 21 are lower than the amount computed based on inflation, therefore, the claimed admin cost of Rs 2,832 million and Rs 2,999 million for FY 2020 and FY 2021 has been allowed which shall be subject to adjustment at the actual provided it is lower than the approved budgeted number for FY 2020 & FY 2021. The allowed admin costs for the FY 2016-2021 are tabulated as under:





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Head	2020-21	2019-20	2018-19	2017-18	2016-17
	Rs. in Million				
Admin Cost	2,999	2,832	2,951	2,441	2,375

38. Recapitulating all the above discussion in respect of the operation and maintenance cost, the following has been approved by the Authority;

Component of O&M Cost	2020-21		2019-20		2018-19		2017-18		2016-17	
	Requested	Allowed	Requested	Allowed	Requested	Allowed	Determined	Allowed	Determined	Allowed
	Rs. in Million									
Employee's salaries & benefits	6,081	6,081	5,791	5,791	5,111	5,111	5,096	4,804	4,256	3,461
Postretirement benefits	8,009	8,009	6,700	6,700	5,857	5,857	4,815	4,493	4,309	4,132
Repair & Maintenance	1,038	1,038	989	989	927	927	1,773	1,317	1,397	886
Administrative expenses	2,998	2,998	2,831	2,831	3,746	2,951	2,485	2,441	2,384	2,375
Total	18,126	18,126	16,311	16,311	15,641	14,845	14,092	13,055	12,346	10,855

39. The Authority observed during the hearing that the O&M cost of some of the HPP below 100 MW i.e. Chitral 1MW, Renala 1MW is very high. Similarly, Gomal Zam and Kurram Garhi HPPs' O&M costs are also on the higher side.
40. Therefore, the Petitioner was directed to provide the reasons in writing for operating these expensive plants less than 100MW. The Petitioner was also asked to justify that if the reason for operating these plants is other than power generation then why the cost has been charged to the power wing of WAPDA and recovered from end consumers. Further, the Petitioner was required to submit details of the decommissioning plan of old and inefficient powerhouses.
41. The Petitioner vide letter dated January 15, 2021, has submitted the following in this regards:

"Hydropower developments represent the best concept of sustainable development. They offer a vast potential where development is most necessary. Hydroelectric installations bring electricity, highways, industry and commerce to communities, thus developing the economy, expanding access to health and education, and improving the quality of life. In the perspective of such comprehensive and diversified sustainable development merits, de-commissioning of hydropower plants for saving few million rupees may not outweigh its demerits. For instance, WAPDA has requested for O&M Expenses of PKR 18,126 Million for 2020-21, comprising of the cost of Salaries & Wages and Admin (PKR 17,088 Million) and R&M expenses of PKR 1,038 Million. Being a public sector organization, the cost of salaries & wages and admin expenses shall remain the same. The only meagre impact would be reduction of few million rupees from the remaining PKR 1,038 Million allocated for R&M of all WAPDA Power Stations. Whereas, the consequential impacts of de-commissioning of these hydropower plants would be detrimental as few but precious and proven hydropower generating sites shall be lost for long apart from problems associated with transferring of large manpower and assets base





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to other power stations. As NEPRA is fully aware of the fact that WAPDA has been established through a parliamentary act (WAPDA Act) and all of its strategic nature decisions are taken only if these are covered by that Act. WAPDA Act does not permit WAPDA to permanently decommission its power projects. In addition to this, no other governmental policy or regulations has been issued as yet which authorizes WAPDA for such actions and spells out consequential procedure for such permanent decommissioning. That's why, it would be first of its kind abandonment of hydropower generating facilities by WAPDA, so it shall likely require explicit governmental approvals, followed by significant procedures developments, disposal of assets issues, if permitted by GOP, and also shall exhaust considerable timeframe resulting in a significant cost again without generating a single unit of electricity. During NEPRA hearing, the idea of handing over these small expensive hydropower plants to provinces was discussed at length contrary to the argument of permanent closure of these plants. Regarding handing over small hydropower plants to provinces, it is our contention that the current policy framework, applicable to WAPDA, contains nothing about such assets transfers. It shall require policy coverage at GOP level and determination of assets pricing and mechanisms to transfer assets to provinces and associated costs to WAPDA by the provinces. Unless and until, there are explicit directions from NEPRA or GOP for such assets transfers, this will remain as a non-starter event. Equally important are the facts that majority of these power plants are located in remote and less developed areas and serve as the only grid connected source of electricity supply for large ruraly categorized but vulnerable populations as well as these power plants serve as necessary voltage boosting facilities to improve the quality of electricity for making it usable for the end consumers. So, the absence of these power plants would not only deprive those localities from the power generated by these plants but would also make the available electricity supply from grid unusable being of low quality due to depressed voltages. Out of the four (4) questioned hydropower plants, Gomul Zam is not an old hydropower plant by any means rather it is a relatively newer plant as it was commissioned in June 2013. Though it has few maintenance issues, but WAPDA is committed to remedy those maintenance issues and has been taking necessary steps for quite some time but law and order situation of the area largely hampered the progress. Therefore, de-commissioning a plant, which was commissioned just seven years ago, might not prove a prudent decision.

NEPRA's Concerns and Possible Options: NEPRA, by virtue of its mandate to protect the interests of consumers, is justified in highlighting the higher unit costs associated with these hydropower plants and demanding the rationale. WAPDA is also concerned about the spiralling unit costs and unsatisfactory performance of these hydropower plants, but WAPDA considers the option of de-commissioning of these power plants as an unviable and imprudent owing to the few facts recorded above. Therefore, WAPDA has already started the rehabilitation and refurbishment projects for these hydropower plants. Even for Chitral Rehabilitation, PC-I from GOP has been approved whereas for Renala and Kurram Garhi, the approvals of PC-Is are in process. In the backdrop of the aforementioned explanations, NEPRA is requested to consider rehabilitation and refurbishment of these hydropower projects as an alternative and viable solution to deal with the issues of higher unit costs of these hydropower plants contrary to the concept of de-commissioning. NEPRA, for the sake of legitimacy and

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prudence litmus tests, can suggest viable implementation plans, indicative timeframes and allow the associated but prudently incurred costs during these rehabilitation and refurbishment projects so that these projects continue to operate and contribute their power system oriented as well as societal benefits for another 40-50 years span."

42. The Authority observed that the Petitioner's stance on the decommissioning of old and inefficient plants is that decommissioning will not be viable as the potential for hydro generation from that specific location will be gone. And that these plants are the only source of electric power to the vulnerable communities in addition to facilitating in improving voltage in the region. The Petitioner also mentions that its Act doesn't allow permanent decommissioning and for doing such activities, explicit approval will have to be obtained which will be time-consuming and costly. The Petitioner however highlighted and acknowledged that Gomal Zam has maintenance issues that they are trying to address. As a way forward, the Petitioner suggested rehabilitation of some of these plants. The Petitioner informed that Chitral Rehab PC-1 is already approved while Renala and Kurram Garhi PC-1 Rehab is in the process.
43. The Authority noted that while some of the arguments against the outright decommissioning will have to be seen from all aspects including aspects highlighted by the Petitioner, however, at this stage, it is clear that some of these plants are expensive and it will not be prudent to allow the actual cost as it is requested. Therefore, it is essential that the overall O&M cost assessed plant wise as per the discussion in the above paragraphs and summarized at para 45, is benchmarked and seen how it compares with the O&M cost of other similar size plants.
44. For this purpose, an analysis based on the international reports was relied upon in the case of other HPP. For this purpose, USD 40 per kW per year overall O&M cost as indicated in the above studies for a capacity of 10 to 100 MW was assumed and for an HPP, less than 10 MW, an O&M cost of USD 113 per KW per year was assumed. As a result, the analysis shows that the average assessed O&M cost for the FY 2017-21 of certain HPPs below 100 MW is higher than the benchmarks.
45. In the case of Jabban HPP (22 MW), the average O&M cost for the period FY 2017 to 21 as assessed on the basis of the reasons provided above, is Rs 167 million whereas as per the above working the average benchmarks amount for Jabban works out to be Rs. 127 million. Following are the average amounts of other HPPs less than 100MW whose even assessed costs are higher than the benchmarks as explained above;

HPP	MW	Assessed Average (FY 2017-21)	Benchmark Average (FY 2017- 21)	Difference
Rs. in million				
Jabban	22	167	127	40
Dargai	20	157	115	42
Kurram Ghari	4	78	65	13
Chitral	1	48	16	32
Nandipur	14	140	80	60
Shadiwal	14	119	80	39

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Chichoki	13	109	75	34
Renala	1	37	16	21
Gomal Zam	17	148	98	50
Total		1,003	672	331

46. The Authority is of the opinion that the cost of O&M needs to be further rationalized and accordingly the above mentioned total costs of Rs 672 million have been approved for the given HPPs.
47. After adjusting the O&M downwards of the above plants using the benchmarks O&M cost, while keeping the O&M of other plants in accordance with the discussion held above, the revised assessed O&M cost for the FY from 2017 to 2021 works out to be as under:

O&M Cost	2020-21		2019-20		2018-19		2017-18		2016-17	
	Rs. in million									
	Requested	Allowed	Requested	Allowed	Requested	Allowed	Requested	Allowed	Requested	Allowed
Total	18,126	17,622	16,311	15,937	15,640	14,562	15,165	12,729	11,791	10,693

Issue No. II. Whether Petitioner's request for allowance of WACC based return on power stations amounting to Rs 25,468 million, Rs 31,585 million, Rs 37,367 million and Rs 37,163 million for FY 2018, 2019, 2020 & 2021 respectively is justified?

Regulatory Asset Base (RAB):

48. As stated earlier, the overall numbers of the claimed financial model including year-wise WACC return have been revised by the Petitioner vide its letter dated January 15, 2021. Below is the detail of the revised claim of average net fixed assets in operations and WACC based return on power/stations:

Description	2020-21	2019-20	2018-19	2017-18	2016-17
Average Net fixed assets in operations (net of depreciation) (Mln Rs)	252,667	258,290	217,861	176,260	179,241
Less: Average Grant (Mln Rs)	(4,049)	(5,217)	(4,057)	(2,360)	(2,454)
Average Net fixed assets for return purpose (Mln Rs)	248,618	253,073	213,804	173,900	176,787
Debt: Equity	70:30	70:30	70:30	70:30	70:30
Cost of Debt	12.690%	12.005%	13.097%	12.729%	12.884%
Cost of Equity	10.000%	17.000%	17.000%	17.000%	17.000%
WACC	11.88%	13.50%	14.27%	14.01%	14.12%
Return on Investment (Mln Rs)	29,543	34,173	30,505	24,364	24,960

49. The Petitioner in its tariff petition has submitted that in the last tariff petition for FY 2017-18 it was projected that T-4 and Golen Gol would start operation in the last quarter of the FY 2017-18 but due to non-availability of Taking Over Certificate (TOC) T-4 and Golen Gol were taken in fixed assets in operation in FY 2018-19. The Petitioner further submitted that:

- Since NEPRA allows ROI on historical cost hence Regulatory Assets Base has been calculated on the basis of historical cost.
- Major portion of RAB of power stations comprises equity due to the fact that most of the debts of existing Hydel Power Stations have already been retired and further reducing each year with





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repayment of debt. However, in the current tariff petition, debt equity ratio for power station has been claimed as 70%:30% as per bench mark set by NEPRA in earlier tariff determination for FY 2015-16 dated 13-11-2015, and for FY 2017-18 dated 22-11-2017.

- The Regulatory Assets Base of Hydel Power Stations, Debt Equity Ratio, WACC and Return on Investment from FY 2016-17 to FY 2018-19 has been calculated based on audited accounts, whereas for FY 2019-20 & FY 2020-21 budgeted CAPEX of Hydel Power Stations and further Capitalization of T-4 and Golen Gol HPPs have also been taken into account.
- The Petitioner has claimed WACC of 14.12%, 14.01%, 14.27% and 13.50% for the FY 2016-17, 2017-18, 2018-19 and 2019-20 respectively based on the Debt/Equity ratio of 70:30. For FY 2020-21 WACC of 11.88% has been claimed by the Petitioner based on 70:30 debt: equity ratio, and 10% return on equity based on decision of CCoE regarding return for GoP owned power project.

50. The Authority noted that while the station-wise break-up of a fixed asset (at cost), depreciation (after netting off the effect of revaluation) and the resultant average net fixed asset in operation) was provided through the audited accounts of respective financial years however, plant wise fixed asset part such as "Transmission equipment" and "other assets" as provided in the submissions couldn't be reconciled with the audited accounts although consolidated number without plant breakup is reconciled from the respective years' account. The lack of plant wise fixed asset details of Transmission Equipment and Other Asset was raised with the Petitioner however, the response was not considered by the Authority as satisfactory. The Authority noted that the value of Transmission Equipment and Other Asset is not a significant part of the overall average net fixed asset in operation. Since the plant-wise Transmission Equipment and Other Assets cant' be verified from audited accounts hence, it has been decided not to allow it as a part of fixed assets in operation at this stage. However, the Petitioner is directed that in the next tariff petition, plant wise details duly audited needs to be given on account of Transmission Equipment and Other Assets of the fixed asset schedule for it to be considered for WACC purposes.

Weighted Average Cost of Capital (WACC)

51. The station wise interest rates of loans have also been verified from Annual Audited Accounts FY 2016-17, 2017-18, and 2018-19. The Authority in the last determination FY 2018 observed that cost of debt is on the higher side therefore, it directed the Petitioner to "...submit summary to the GoP for modification of the relending rates at actual terms & conditions available to GoP, so that in the next Petition, the cost of debt can be reduced and its benefit can be passed on to the consumer.
52. On account of the rate of return, the Authority was apprised that CCoE in its meeting dated August 27, 2020, decided to revise NEPRA allowed return of all public sector power plants. Within these plants, it was decided that the return of 17% allowed to WAPDA will be reduced to 10%. The Authority noted that the instant petition was filed before the decision of CCoE therefore, the necessary adjustment in tariff was not requested. However, during the hearing held on November 12, 2020, the Petitioner assured compliance and accordingly submitted a revised financial model based on the revised RoE of 10% effective from FY2021.
53. Since the decision date of August 27, 2020, falls in the FY 2021 therefore, in the opinion of the Authority the application of revised rates should principally be made effective from August 27, 2020, onwards. Accordingly, RoE of 10% has been applied from August 27, 2020, and before that, a return





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of 17% has been allowed to the Petitioner as per the past practice which leads to a weighted average cost of equity of 11.09% for FY 2021. While calculating plant wise RAB, a debt-equity ratio of 70:30 has been assumed as allowed in previous determinations.

54. Accordingly, the overall allowed Return on Investment ROI or WACC of all stations combined for FY 2016-17, FY 2017-18, FY 2018-19, FY 2019-20, and FY 2020-21 is given hereunder:

WAPDA HYDEL POWER STATIONS (RAB AND WACC CALCULATION)					
Generation Block	2020-21	2019-20	2018-19	2017-18	2016-17
RAB for return purpose (Mln Rs)	234,263	238,690	204,427	165,192	167,779
Debt	70%	70%	70%	70%	70%
Equity	30%	30%	30%	30%	30%
Cost of Debt	12.52%	11.89%	12.93%	12.56%	12.71%
Cost of Equity	11.09%	17.00%	17.00%	17.00%	17.00%
WACC	12.09%	13.42%	14.15%	13.89%	13.99%
ROI (Mln Rs)	28,330	32,033	28,643	22,945	23,480

Issue No. III. Whether Petitioner's request for allowance of WACC based return on investment on power projects amounting to Rs 27,109 million, Rs 22,314 million, Rs 21,500 million, and Rs 32,085 million for FY 2018, 2019, 2020 & 2021 respectively is justified? And

Issue No. IV. Whether the inclusion of 64% Diamir Basha Dam cost (WACC based return) as claimed by the Petitioner to be made a part of WAPDA Hydro-electric's tariff is justified?

55. The above-referred claims were revised by the Petitioner vide letter dated January 15, 2020, as stated earlier. Below is the detailed revised return on investment on power projects:

Description	2020-21	2019-20	2018-19	2017-18	2016-17
Average Capital Work in Progress (Mln Rs)	328,482	220,797	198,897	209,121	161,025
Less: Average Grant (Mln Rs)	104,026	59,099	16,615	3,105	701
Average Capital Work in Progress financed other than grant (Mln Rs)	224,456	161,697	182,282	206,016	160,324
Debt: Equity	80:20	80:20	80:20	80:20	80:20
Cost of Debt	10.47%	10.31%	11.12%	12.22%	12.42%
Cost of Equity	10%	17%	17%	17%	17%
WACC	10.38%	11.65%	12.30%	13.17%	13.34%
ROI	23,294	18,838	22,416	27,140	21,383

56. As per the Petitioner, WAPDA established in February 1958 (WAPDA Act 1958) was mandated for integrated and rapid development and maintenance of water and power resources of the country. Since its inception, WAPDA has been developing new power projects with multiple sources of financing. WAPDA has submitted that the above tabulated consolidated Average Regulatory Assets Base, WACC and ROI of Hydel Power Projects for FY 2015-16 to FY 2018-19 are based on Audited accounts of the respective years and budgeted for FY 2019-20 & projected for FY 2020-21.





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57. The Petitioner has submitted that the Regulatory Assets Base (RAB) of WAPDA Hydroelectric includes Average Capital Works in Progress (CWIP). Average RAB for CWIP has been calculated as per NEPRA decisions with the following variables:

- Opening CWIP balances.
- Adding annual additional capital investment in under-development licensed power projects estimated on the basis of approved/ revised PSDP.
- Excluding annual IDC being period cost.
- Average of the resultant closing balance of CWIP and opening CWIP.

58. The Petitioner informed that in compliance with NEPRA's last determinations, the projects' debt-equity ratio has been taken as 80:20%.

Ministry of PD&SI on ROI on Projects

- 17% return on equity is on higher side it may be reduced to 10%
- The lending cost during 2019-20 as per Finance dev remained 11.53%.
- In 2016-17 capital work in progress (opening) is shown as 127.314 million where as it should be the closing balance for 2015-16 i.e. Rs. 61,650 million. This should be clarified.
- Kejal Khawar 2nd revised PC-1 was approved at a cost of Rs. 26.084 billion by ECNEC in February 2016. The 3rd revised PC-1 of the project is not yet submitted to Planning Commission.
- Average net fixed assets (for return) as given in the petition and that given in WAPDA's Monthly Progress Report (MPR) for the month of July 2020. The comparison is as under;

Name of project	Exp upto 30-06-2020 as MPR	Exp. As in Annex-14 of Petition upto 2019-20
Rs. in million		
G.Gol	33.767	54.397
T4	100.220	147.062
K.K	3.639	12.227
Dasu	76.680	174.279
DBD	154.667	303.804

- The above difference may kindly be explained by Petitioner as this is going to have effect on return base.

Petitioner's Response:

WACC based return on power project has been calculated out and claimed in the light of previous decisions of NEPRA.

- Average CWIP excluding IDC (direct cost) has been included for Regulatory Assets Base.
- Benchmark Debt/Equity ratio of 80%:20% set by NEPRA for hydel power stations has been taken.
- For WACC, average debt balance at actual interest rates and average equity at 17% ROE has been used.





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- d. Figure for FY 2017-18 and FY 2018-19 has been calculated on the basis of audited accounts.
- e. Figure for FY 2019-20 are based on provisional accounts, whereas figures for FY 2020-21 are based on PSDP approved by the GoP.
- f. 17% simple Return on Equity (ROE) in PKR has been claimed in the tariff petition in line with the GOP policy and ROE allowed by NEPRA in previous tariff determinations.
- g. Lending cost of Finance Division 11.53% mentioned in the question is not applicable on WAPDA. Cost of debt claimed in the tariff petition is as per actual lending rates.
- h. In column for FY 2015-16, Tabel-11 of the instant tariff petition, it has been specifically mentioned that average Capital Works in Progress balance pertaining to DBD only which was disallowed by NEPRA in the last tariff determination has now been claimed. Whereas, from FY 2016-17 onwards average Capital Works in Progress balance comprise of audited/provisional expenditures in respect of all Hydropower development projects of WAPDA.
- i. Approval of Revised PC-I from Planning Commission, GoP and Tariff modification by NEPRA are two independent processes. In the instant tariff petition actual yearly expenditures incurred on Keyal Khwar HPS based upon the audited/provisional accounts for the years under report have been included.
- j. It may be clarified that expenditures on development projects (direct cost excluding IDC) are claimed in the instant tariff petition duly supported with the audited/provisional accounts of WAPDA hydroelectric as reported in Table-10 and Annexure-14 of the petition. Neither figure of MPR are part of petition nor figure quoted in the question are found anywhere in the petition
59. In the current tariff petition, the Petitioner has informed that since the last tariff determination for the FY 2017-18, two HPPs namely Golan Gol (108MW) and Tarbela 4th extension (T4) (1,410MW) have achieved operations, and three HPPs namely Diamer Bhasha (4,500MW), Dasu (2,160MW) and Keyal Khwar (128MW) are still under construction and two HPP namely Mangla & Warsak Hydel power are under rehabilitation. In the proceeding paras, the Project wise discussion will be held followed by the decision of the Authority:

Tarbela 4th Extension and Golan Gol HPP:

60. Below is the detailed of return on investment claimed for Tarbela 4th Extension:

Tarbela 4th Extension	2020-21	2019-20	2018-19	2017-18	2016-17
Capital Work In Progress (Excl. IDC) Open (A) (Mln. Rs.)	5,465	3,328	66,606	54,960	32,630
Investment During the Year (Mln. Rs.)	3,265	2,138	3,148	11,647	22,330
CWIP Transferred to Fixed Assets (Mln. Rs.)	-	-	(66,426)	-	-
Capital Work In Progress (Excl. IDC) Closing (B) (Mln. Rs.)	8,730	5,465	3,328	66,606	54,960
Average Capital Work in Progress (C= (A+B)/2) (Mln. Rs.)	7,098	4,397	34,967	60,783	43,795
Less: Average Grant (Mln. Rs.)	-	-	-	-	-
RAB for Return Purpose (Mln. Rs.)	7,098	4,397	34,967	60,783	43,795
Debt :Equity	80:20	80:20	80:20	80:20	80:20





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Cost of Debt	14.921%	14.921%	14.921%	15.408%	14.701%
Cost of Equity	10%	17%	17%	17%	17%
WACC	13.937%	15.337%	15.337%	15.726%	15.161%
ROI (Mln. Rs.)	989	674	5,363	9,559	6,640

61. Below is the detailed return on investment claimed for Golen Gol HPP:

Golen Gol HPP	2020-21	2019-20	2018-19	2017-18	2016-17
Capital Work In Progress (Excl. IDC) Open (A) (Mln. Rs.)	4,657	4,111	26,924	19,601	13,635
Investment During the Year (Mln. Rs.)	936	546	4,111	7,324	5,966
CWIP Transferred to Fixed Assets (Mln. Rs.)	-	-	(26,924)	-	-
Capital Work In Progress (Excl. IDC) Closing (B) (Mln. Rs.)	5,593	4,657	4,111	26,924	19,601
Average Capital Work in Progress (C= (A+B)/2) (Mln. Rs.)	5,125	4,384	15,518	23,262	16,618
Less: Average Grant (Mln. Rs.)	(0)	(1,791)	(3,044)	(1,262)	(8)
RAB for Return Purpose (Mln. Rs.)	5,125	2,593	12,474	22,001	16,609
Debt :Equity	80:20	80:20	80:20	80:20	80:20
Cost of Debt	16.641%	16.641%	16.641%	16.962	16.781%
Cost of Equity	10%	17%	17%	17%	17%
WACC	15.313%	16.713%	16.713%	16.969%	16.825%
ROI (Mln. Rs.)	785	433	2,085	3,733	2,794

62. In the last determination, the Petitioner was directed to ensure that the above projects are completed within the last quarter of FY 2018 i.e. in Apr-Jun 2018, beyond that the Petitioner shall not be entitled to receive IDC and RoEDC on the cost of funds for this project. WAPDA in its compliance has submitted that the Hydel Power Stations of Tarbela 4th Extension and Golen Gol were timely completed during FY 2017-18 and after successful testing, it got transferred to operational assets during FY 2018-19 which has significantly enhanced the Net Fixed Assets in Operations. As per WAPDA Hydroelectric, although both Tarbela 4th Extension and Golen Gol HPPs are operative since FY 2018-19 certain allied works are still underway, during FY 2019-20 and FY 2020-21 additional capital investment will be made to complete these leftover works.
63. While reviewing the T4 and Golen Gol HPP submissions, it was noted by the Authority that WACC based returns on significant investment were claimed by WAPDA Hydroelectric even after these plants achieved CODs. Accordingly, WAPDA Hydroelectric was directed to explain the reason for the additional investments undertaken in T-4 and Golen Gol HPP two years after achieving COD.
64. WAPDA Hydroelectric was further directed to certify whether the additional cost in the case of T4 Post-COD (which even increased to Rs 10.167 billion in FY 2019) was incurred to fix the damage which was caused during the COD process for which numerous inquiries were also held and/or ongoing. WAPDA Hydroelectric was also required to submit the total cost spent to fix the damage to T4 including the status of such inquiries and if concluded, share the reports. In addition to the above, the Petitioner was directed to justify why WACC-based return should be allowed to an investment post COD.
65. WAPDA Hydroelectric in its response dated January 15, 2021, submitted that:

"With regard to spending on Golen Gol HPP and T-4 HPP after COD, it may be mentioned that both these projects are in Warrantee/ DL period. During FY 2018- 19, WAPDA





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Hydroelectric transferred direct cost of these projects to the extent of actual payments made up to that time, whereas certain %age of direct cost was withheld as guarantee money which is to be paid during and after Warrantee/ DL period as per agreed terms and transferred to fixed assets in operation in the year of actual payment.

In case of Golen Gol HPP pending payments also include resettlement and compensations cases. Whereas, at T-4, leftover PC-I works comprising, upgradation of intake structure of tunnels and upgradation of Tarbela switchyard which are to be done after the completion of power houses are presently in progress with expected completion during FY 2021-22 as per the PC-I timelines.

The amount of spending Rs.10.167 billion on T-4 during FY 2019-20 highlighted by NEPRA was provisional and this fact was also intimated to NEPRA. This amount contains provisional entries pertaining to certain expenditures which are project cost but not part of the direct cost, however, WAPDA Hydroelectric has to maintain the record of total project cost for reporting purposes. Necessary corrections in the accounts have now been made and actual direct cost incurred on T-4 during FY 2019-20 is Rs.2.13 billion which is duly incorporated in the revised Tariff working revised. Further, it is also clarified that the fault in T-4 during COD was got repaired from the contractor without any additional cost being Warrantee/ DL period.

In view of the fact that both Golen Gol and T-4 started operation as per the NEPRA stipulated time. NEPRA is requested to allow WAPDA Hydroelectric to make payment of guarantees and compensations as well as to incur cost on adjacent works necessary for the smooth working of T-4 in view of the approved Revised PC-I."

66. With regard to the ROEDC and IDC due to delayed commissioning of T4 and Golen Gol , WAPDA Hydroelectric submitted the following:

"There was no delay in completion of T-4 and Golen Gole projects, both the Projects were completed within time as stipulated in the NEPRA's decision dated 22-11-2017, however these projects were transferred to fixed assets in operation in July 2018 (FY 2018-19)"

67. The Authority considered the submission of the Petitioner and acknowledged that there would be a difference between the date of commercial operations and the period in which an asset from CWIP is transferred to a fixed asset schedule for commencement of depreciation. In the case of Golen Gol and T4, COD was achieved in the quarter ending June 2018 (actual COD) and it was transferred in the fixed asset in the next month that falls in the next financial year of 2019. Therefore, prima facie, WAPDA is largely compliant with the direction of the Authority on account of timely achieving COD.
68. On the issue of claiming the cost of funds on investment appearing post-COD in the accounts, the Authority observed that the Petitioner has not submitted evidence that substantiates/justify such a transaction other than arguing that it has been actually incurred and reflected in the accounts. In the instant case, the Authority is being constrained to disregard investment made post COD for the purpose of computing WACC based return.
69. Based on the above discussions the following ROI of T4 and Golen Gol has been allowed to the Petitioner:





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Tarbela 4th Extension	2020-21	2019-20	2018-19	2017-18	2016-17
Capital Work In Progress (Excl. IDC) Open (A) (Mln. Rs.)	-	-	66,606	54,960	32,630
Investment During the Year (Mln. Rs.)	-	-	-	11,647	22,330
CWIP Transferred to Fixed Assets (Mln. Rs.)	-	-	(66,606)	-	-
Capital Work In Progress (Excl. IDC) Closing (B) (Mln. Rs.)	-	-	-	66,606	54,960
Average Capital Work in Progress (C= (A+B)/2) (Mln. Rs.)	-	-	-	60,783	43,795
Cost of Debt	-	-	-	15.408%	14.701%
Less: Average Grant	-	-	-	-	-
RAB for Return Purpose	-	-	-	60,783	43,795
Debt: Equity	-	-	-	80:20	80:20
Cost of Equity	-	-	-	17%	17%
WACC	-	-	-	15.726%	15.161%
ROI (Mln. Rs.)	-	-	-	9,559	6,640

Golen Gol HPP	2020-21	2019-20	2018-19	2017-18	2016-17
Capital Work In Progress (Excl. IDC) Open (A) (Mln. Rs.)	-	-	26,924	19,601	13,635
Investment During the Year (Mln. Rs.)	-	-	-	7,324	5,966
CWIP Transferred to Fixed Assets (Mln. Rs.)	-	-	(26,924)	-	-
Capital Work In Progress (Excl. IDC) Closing (B) (Mln. Rs.)	-	-	-	26,924	19,601
Average Capital Work in Progress (C= (A+B)/2) (Mln. Rs.)	-	-	-	23,262	16,618
Less: Average Grant (Mln. Rs.)	-	-	-	(1,262)	(8)
RAB for Return Purpose (Mln. Rs.)	-	-	-	22,001	16,609
Debt: Equity	-	-	-	80:20	80:20
Cost of Debt	-	-	-	16.962%	16.781%
Cost of Equity	-	-	-	17%	17%
WACC	-	-	-	16.969%	16.825%
ROI (Mln. Rs.)	-	-	-	3,733	2,794

Diamer Basha Dam:

70. The Authority in the earlier Tariff Determination of WAPDA (Hydroelectric) for FY 2017-18 dated: 22.11.2017 has disallowed the Return on Investment made in DBD due to non-availability of approved allocation of cost between Water and Power Wing. The Authority through the said determination directed the Petitioner to submit documentary evidence regarding the cost of Diamir Basha project, pertaining to the generation facility, for consideration of the Authority in the future.

Ministry of PD&SI on RoI on DBD

- In respect of DBD's financing arrangement and distribution of cost between Power and Water following is submitted;
- The revised PC-1 for LA&R component was approved at the cost of Rs. 175 billion. So far Rs. 107.199 billion has been released to WAPDA.





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CDL	Rs. 83.287 billion
PSDP Grant	Rs. 23.912 billion
Total	Rs. 107.199 billion

- WAPDA had claimed 64% of cost toward power sector and 36% for water sector. However, the position as per approved PC-1 is as under;

Water Sector	547 billion	84%
Power Sector	102 billion	15%
Total	649 billion	

- WAPDA may be asked to clarify the cost allocation.

Petitioners Response

- Copy of the Table 20-B of PC-I Diamer Basha Dam (DBD) attached with the comments of Planning Commissioner is extract of some old draft/un-approved PC-I which also includes LA&R as project component. Now, separate PC-Is for LA&R and Dam part have been approved and the allocation of cost between Water and Power Sector claimed in the Tariff Petition is based on revised/ updated approved PC-Is

71. However, the Petitioner in its claim has not apportioned the Dam cost into the water and power section and put the entire cost incurred so far on the project into the power section meaning thereby that RoI for the entire investment made has been requested to be passed on to consumers. Below is the detailed of return on investment claimed for Diamer Basha Dam (DBD) in the current tariff petition:

Description	2020-21	2019-20	2018-19	2017-18	2016-17	2015-16
Capital Work In Progress (Excl. IDC) Open (A) (Mln in Rs)	145,363	86,389	77,202	73,297	61,650	30,804
Investment During the Year (Mln in Rs)	21,000	58,974	9,187	3,904	11,647	30,846
CWIP Transferred to Fixed Assets (Mln in Rs)	-	-	-	-	-	-
Capital Work In Progress (Excl. IDC) Closing (Mln in Rs) (B)	166,363	145,363	86,389	77,202	73,297	61,650
Average Capital Work in Progress (C= (A+B)/2) (Mln in Rs)	155,863	115,876	81,795	75,250	67,474	46,227
Less: Average Grant	(74,210)	(34,223)	(2,368)	-	-	-
RAB for Return Purpose	81,653	81,653	79,427	75,250	67,474	46,227
Debt: Equity	80:20	80:20	80:20	80:20	80:20	80:20
Cost of Debt	10.196%	10.210%	10.215%	10.220%	10.965%	11.972%
Cost of Equity	10%	17%	17%	17%	17%	17%
WACC	10.156%	11.568%	11.572%	11.576%	12.172%	12.941%
ROI (Mln in Rs)	8,293	9,445	9,192	8,711	8,213	5,982

72. The Petitioner submitted that Diamir Basha Dam (DBD) Project is included in the Generation License of WAPDA Hydroelectric since 2015. Considering the significance and quantum of the DBD project, Federal Government decided to develop DBD in stages and the Ministry of Water & Power vide its letter dated 1st December 2016 on the Financing Strategy for Diamir Basha Dam, directed WAPDA to submit separate updated PC-Is for dam part and power generation.
73. The Petitioner submitted that as per the guidelines of the Federal Government, WAPDA got approvals of PC-I and 2nd Revised PC-I covering Acquisition of Land and Resettlement and updated PC-I for





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Dam Civil Works. The total approved cost of DBD Dam part is Rs.655 billion, the breakup of which is given hereunder:

Description	Updated Cost Rs. in Billion
Dam Part	
Acquisition of Land and Resettlement	175
Dam and Civil Works	480
Total Updated Cost	655

74. The Petitioner submitted that the updated PC-I for the Power generation part attributable solely to Power Sector will be submitted for approval subsequently. The Petitioner submitted that for Acquisition of Land and Resettlement, Federal Government has approved to provide Cash Development Loans (CDL) and approved to finance part of Dam and associated expenditures as grant being Water Sector costs, whereas, it was approved that WAPDA will arrange the cost of Civil works including waterways i.e. intake, tunnels etc. required for power generation as self-sources (equity) and/or local & foreign loans and to-date the work has been done in respect of Dam part and the power generation part has still to take effect. The Petitioner further submitted that in recent years development works of DBD are gaining pace with the Federal Government making regular allocations in PSDP. From FY 2018-19 Federal Government has been making allocations as grant, however, to date Federal Government has provided WAPDA Rs. 86 billion as CDL for development of DBD on which interest is also charged from WAPDA annually. Acquisition of Land for DBD is near completion whereas a civil works contract has been signed with Power China- FWO JV on May 13, 2020. The Petitioner has informed that it has repeatedly requested the Federal Government to convert the amount of CDL into a grant but the issue is still unresolved.
75. The Petitioner has submitted that the financing ratio of approved updated cost as per above-referred PC-I of DBD works out as 64% to Power Sector and 36% to Water Sector. Below is the breakup of the funding for the project as submitted by the Petitioner:

Description	Updated Cost Rs. in Billion	Allocation Of Cost
Financing/Allocation of Cost		
Water Sector		
Federal Government Grant	238	36%
Power Sector		
Federal Government CDL	175	
WAPDA	242	
TOTAL	417	64%
Total	655	100%

76. The Authority reviewed the submission of the Petitioner with regards to the apportionment of DBD in water and power and noted that the total approved update cost of DBD Dam part by the Federal Government is Rs.655 billion. However, in support of the %age allocation of cost into the water and power sector, the Petitioner has not provided any documentary evidence that can ensure compliance with the Authority's directions as given in the earlier tariff determination. It was further noted that in the approval of the 2nd Revised PC-I for the Land Acquisition and Resettlement, it has been stated that funding for the acquisition of land and resettlement & Rehabilitation is being provided by the Government of Pakistan without any further bifurcation into CDL, grant and WAPDA equity.





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77. It was observed that although the apportionment ratio is slightly different than the requested ratio of 64:36 Power: Water, the Petitioner however submitted the breakup of annual benefits that will be gained from the project based on 2nd Revised PC-I for the Land Acquisition and Resettlement in order to justify above-referred percentages. The breakup of the stated benefits is given hereunder:

Benefits	Amount Rs. in million	%age of benefit p.a.
Water Benefits		
Irrigation Benefits	50,824	33%
Flood Alleviation Benefits	2,331	
Power Benefits		
DBD	100,438	67%
Tarbela	6,166	
Total	159,759	

78. The Ministry of PD&SI also indicated in its response that DBD cost allocation should be 84% water and 15% power. In support, it has shared a copy of that table where such allocation is clearly mentioned. However, it was noted that in the updated version of PC-I dated June 2019 shared by the Petitioner, no such allocation exists in clear terms. And WAPDA has also disputed that the PC-I from where such allocation was extracted by the Ministry of PD&SI never got approved.
79. The Authority carefully reviewed the submission of the Petitioner and observed that the Federal Government has been making allocations as grants and has provided Rs. 63.7 billion as of Jun 30, 2020. WAPDA Hydroelectric expects the grant will increase substantially in the FY 2021 by Rs 21 billion accumulating to Rs 84.7 billion by the end of June 30, 2021. Similarly, the government is supporting WAPDA Hydroelectric through cash development loans (CDL) which collectively amounts to Rs. 82.123 billion in FY 2020. The accounts reveal that CDL carries an average interest rate of 10.21% (FY 2020). WAPDA Hydroelectric has informed that the Federal Government has been requested to convert the amount of CDL into a grant which if consented by the Government will mean that beyond FY 2020 no further CDL will be utilized against the allocated total CDL of Rs 175 billion as shown in the table above.
80. Therefore, assuming the remaining CDL amounting to Rs 92.9 billion (Rs 175-82.123 billion) is converted to grant which carries no effect on WAPDA's tariff then the allocation of DBD cost from sources of fund perspective will be 49% Power and 51% Water as tabulated below and same is therefore allowed to the Petitioner. The Petitioner shall ensure no more CDL is parked at DBD which is contributing to Power sector cost and accordingly resolve this issue with the Federal Government and that in the future if the grant amount from the current estimated Rs 331 billion increases, the corresponding adjustment shall be carried out in WAPDA Hydro electric's tariff.
81. Keeping in view the above the revised allocation of DBD project cost for the power sector works out as under:

DBD Cost Apportionment	WAPDA requested		DBD Apportionment assuming no CDL beyond 2020	
	Rs billion	%age	Rs billion	%age
Water Sector				





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Grant	238	36%	331	51%
Power Sector				
Cash Development Loan (CDL)	175	-	82	13%
WAPDA (Equity)	242	-	242	37%
Total Power Sector	417	64%	324	49%
Total Cost of DBD Dam	655	100%	655	100%

82. The allowed return of DBD project pertaining to the power sector is tabulated below. The return on equity has been revised from 17% to 10% in FY 2021 effective from August 27, 2020, in pursuance to CCoE decision as discussed in the earlier paras:

Description	2020-21	2019-20	2018-19	2017-18	2016-17	2015-16
Capital Work In Progress (Excl. IDC) Open (A) (Mln in Rs)	145,363	86,389	77,202	73,297	61,650	30,804
Investment During the Year (Mln in Rs)	21,000	58,974	9,187	3,904	11,647	30,846
CWIP Transferred to Fixed Assets (Mln in Rs)	-	-	-	-	-	-
Capital Work In Progress (Excl. IDC) Closing (B) (Mln in Rs)	166,363	145,363	86,389	77,201	73,297	61,650
Average Capital Work in Progress (C= (A+B)/2) (Mln in Rs)	155,863	115,876	81,796	75,249	67,474	46,227
49% pertaining to power sector (Mln in Rs)	76,373	56,779	40,080	36,872	33,062	22,651
Debt: Equity	80:20	80:20	80:20	80:20	80:20	80:20
Cost of Debt	10.196%	10.210%	10.215 %	10.220 %	10.965%	11.972 %
Cost of Equity	11.09%	17%	17%	17%	17%	17%
WACC	10.375%	11.568%	11.572 %	11.576 %	12.172%	12.941 %
ROI (Mln in Rs)	7,924	6,568	4,638	4,268	4,024	2,931

Keyal Khwar:

83. Below is the detail of return on investment claimed for Keyal Khwar HPP:

Keyal Khwar	2020-21	2019-20	2018-19	2017-18	2016-17
Capital Work In Progress (Excl. IDC) Open (A) (Mln in Rs)	3,369	3,198	2,801	2,984	2,593
Investment During the Year (Mln in Rs)	1,358	171	396	(183)	392
CWIP Transferred to Fixed Assets (Mln in Rs)	-	-	-	-	-
Capital Work In Progress (Excl. IDC) Closing (B) (Mln in Rs)	4,727	3,369	3,198	2,801	2,984
Average Capital Work in Progress (C= (A+B)/2) (Mln in Rs)	4,048	3,283	3,000	2,893	2,788
Less: Average Grant (Mln in Rs)	-	-	-	-	-
RAB for Return Purpose (Mln in Rs)	4,048	3,283	3,000	2,893	2,788
Debt: Equity	80:20	80:20	80:20	80:20	80:20
Cost of Debt	9.764%	14.74%	15.10%	14.20%	15.066%
Cost of Equity	10%	17%	17%	17%	17%
WACC	9.811%	15.19%	15.48%	14.76%	15.453%





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ROI (Mln in Rs)	397	499	464	427	431
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84. In the earlier determination, the Authority allowed RoI based on CWIP of Rs. 2,533 million for FY 2016-17 and FY 2017-18 on a provisional basis which was subject to adjustment as per actual based on the audited accounts of the relevant year. Further, the Petitioner in the earlier tariff petition informed that the project will be operational by 12.08.2020. Therefore, the Petitioner was directed to ensure that the project is completed within the stipulated time beyond that no IDC and RoEDC shall be allowed to the Petitioner. In case delays occur beyond the control of the Petitioner in such case, reasons for delays need to be submitted to NEPRA in writing along with the relevant record.
85. WAPDA Hydroelectric in its tariff petition has submitted that the development of Keyal Khwar Hydropower Project has suffered major setbacks due to the following reasons which are beyond the control of WAPDA and pushed the expected COD of Keyal Khwar HPP till FY 2025-26. WAPDA has submitted that:
- The Civil Works Contract of Keyal Khwar HPP was awarded to M/s Sinohydro-Hajvery JV on 13.08.2016, but due to non-performance of the Contractor, the Contract was terminated on 17.12.2018.
 - Resultantly, WAPDA Authority has to annul the Bidding process for E&M Equipment Contract also.
 - In Nov-2018, EIB withdraw its loan for Keyal Khwar HPP creating financial gap of Euro 100 million.
 - WAPDA has to resort to explore alternative financing options through EAD to fill the financing gap and now M/S AFD has agreed to extend loan for the Project.
 - These events coupled with inflation and exorbitant rise in exchange rate parity between Pak Rupee and EURO necessitates approval of 3rd Revised PC-I of Keyal Khwar HPP.
86. The Authority noted with concern that the project is not yet materialized since the bidding process for the E&M equipment contractor has been annulled by WAPDA Hydroelectric and EIB has withdrawn its loan. Further, no detail with regard to alternative financing options has been submitted by the Petitioner. Therefore, the Authority has decided to disallow the RoI allowed previously and during the current period under review.

DASU Stage I:

87. Below is the detailed of return on investment claimed for DASU HPP:

DASU Stage I	2020-21	2019-20	2018-19	2017-18	2016-17
Capital Work In Progress (Excl. IDC) Open (A) (Mln in Rs)	68,299	47,411	38,848	34,613	9,226
Investment During the Year (Mln in Rs)	80,069	20,888	8,562	4,236	25,387
CWIP Transferred to Fixed Assets (Mln in Rs)	-	-	-	-	-
Capital Work In Progress (Excl. IDC) Closing (B) (Mln in Rs)	148,368	68,299	47,411	38,848	34,613
Average Capital Work in Progress (C= (A+B)/2) (Mln in Rs)	108,333	57,855	43,129	36,730	21,919

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Less: Average Grant (Mln in Rs)	-	-	-	-	-
RAB for Return Purpose (Mln in Rs)	108,333	57,855	43,129	36,730	21,919
Debt: Equity	80:20	80:20	80:20	80:20	80:20
Cost of Debt	9.743%	7.078%	7.452%	7.833%	8.501%
Cost of Equity	10%	17%	17%	17%	17%
WACC	9.794%	10.66%	9.361%	9.666%	10.200%
ROI (Mln in Rs)	10,610	6,169	4,037	3,550	2,236

88. WAPDA Hydroelectric in its tariff petition has submitted that it has in place a major portion of financing as per the development requirements for Dasu Stage-I, however, progress on main Civil Works remained slow due to land acquisition issues. After resolution of land acquisition issues and mobilization of Civil Works Contractor, Electro-Mechanical Works Contract (Dasu- EM-01), having a completion period of 62 months, has also been awarded.
89. In the earlier tariff determination, the Authority allowed Rs 16.922 billion and Rs 31 billion Capex of Dasso project for FY 2016-17 and FY 2017-18 respectively which was subject to adjustment at actual based on audited accounts of the respective years. The RoI requested for the period under review have now been assessed on the basis of audited accounts of respective years. The projected numbers for the FY 2019-20 and FY 2020-21 have been relied upon and adjusted to the extent of application of weighted average cost of equity of 11.09% as discussed in para 53 above. The same shall be actualized based on the audited accounts of the respective years in the next tariff petition.
90. Further, it was observed that the Petitioner in the earlier tariff determination for 2017-18 claimed that the last unit of the project will be completed by June 2023. Accordingly, the Petitioner was to ensure that the project is completed within the stipulated time beyond that no IDC and Return on Equity During Construction (RoEDC) shall be allowed to the Petitioner.

Other:

91. Below is the detailed of return on investment claimed for other HPP:

Mangla Rehabilitation	2020-21	2019-20	2018-19	2017-18	2016-17
Capital Work In Progress (Excl. IDC) Open (A) (Mln in Rs)	11,102	6,893	4,426	1,789	678
Investment During the Year (Mln in Rs)	5,024	4,209	2,468	2,637	1,111
CWIP Transferred to Fixed Assets (Mln in Rs)	-	-	-	-	-
Capital Work In Progress (Excl. IDC) Closing (B) (Mln in Rs)	16,126	11,102	6,893	4,426	1,789
Average Capital Work in Progress (C= (A+B)/2) (Mln in Rs)	13,614	8,998	5,660	3,107	1,233
Less: Average Grant	(3,396)	(3,396)	(2,849)	(1,843)	(692)
RAB for Return Purpose (Mln in Rs)	10,218	5,602	2,811	1,264	541
Debt: Equity	80:20	80:20	80:20	80:20	80:20
Cost of Debt	12%	12%	12%	12%	12%
Cost of Equity	10%	17%	17%	17%	17%
WACC	11.60%	13%	13%	13%	13%
ROI (Mln in Rs)	1,185	728	365	164	70





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Warsak 2nd Rehabilitation	2020-21	2019-20	2018-19	2017-18	2016-17
Capital Work In Progress (Excl. IDC) Open (A) (Mln in Rs)	1,167	1,035	1,021	963	-
Investment During the Year (Mln in Rs)	3,200	132	13	59	963
CWIP Transferred to Fixed Assets (Mln in Rs)	-	-	-	-	-
Capital Work In Progress (Excl. IDC) Closing (B) (Mln in Rs)	4,367	1,167	1,035	1,021	963
Average Capital Work in Progress (C= (A+B)/2) (Mln in Rs)	2,767	1,101	1,028	992	481
Less: Average Grant (Mln in Rs)	-	-	-	-	-
RAB for Return Purpose (Mln in Rs)	2,767	1,101	1,028	992	481
Debt: Equity	80:20	80:20	80:20	80:20	80:20
Cost of Debt	15%	15%	15%	15.031 %	14.533%
Cost of Equity	10%	17%	17%	17%	17%
WACC	14%	15.4%	15.4%	15.425 %	15.026%
ROI (Mln in Rs)	387	170	158	153	72

Others	2020-21	2019-20	2018-19	2017-18	2016-17
Capital Work In Progress (Excl. IDC) Open (A) (Mln in Rs)	27,884	21,923	5,678	6,530	6,903
Investment During the Year (Mln in Rs)	7,500	5,960	16,576	(852)	-
CWIP Transferred to Fixed Assets (Mln in Rs)	-	-	(330)	-	(373)
Capital Work In Progress (Excl. IDC) Closing (Mln in Rs) (B)	35,384	27,884	21,923	5,678	6,530
Average Capital Work in Progress (C= (A+B)/2) (Mln in Rs)	31,634	24,904	13,801	6,104	6,716
Less: Average Grant (Mln in Rs)	(26,419)	(19,689)	(8,355)	-	-
RAB for Return Purpose (Mln in Rs)	5,214	5,214	5,446	6,104	6,716
Debt: Equity	80:20	80:20	80:20	80:20	80:20
Cost of Debt	13%	13%	13%	13%	13%
Cost of Equity	10%	17%	17%	17%	17%
WACC	12.40%	13.80%	13.80%	13.80%	13.80%
ROI (Mln in Rs)	647	720	752	842	927

92. WAPDA Hydroelectric in its tariff petition has submitted that in order to secure and boost the life of the present installed capacity of Tarbela, Mangla & Warsak Hydel power stations replacement, refurbishment, up-gradation and expansion activities have been initiated as per the recommendations of the feasibility studies expenditures incurred on these activities have also been included in CWIP.
93. The above tabulated numbers are checked with the audited accounts for the FY 2016-17, 2017, 18 and 2018-19, and the projected numbers for the FY 2019-20 and FY 2020-21 as submitted by the Petitioner has been relied upon by the Authority for assessment of RoI which shall be subject to adjustment as per actual based on the audited accounts of respective years.
94. The Petitioner stated that the "other" part of the Project for which RoI on RAB has been claimed and allowed previously include projects that are at the initial stage of development and mainly comprises feasibility cost etc. Upon inquiry details of such cost was not provided. At this stage RoI on "other" part of the Petitioner's Project RAB verified from the account has been decided by the Authority to be





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included however, in the next tariff petition, the Petitioner is directed to share proper details and justification of each subhead for it to be considered for assessment of RoI.

95. Based on the above discussion, the overall allowed RoI of all projects combined for FY 2016-17, FY 2017-18, FY 2018-19, FY 2019-20 and FY 2020-21 is given hereunder which has been apportioned into revenue requirement of operational plants based on respective capacities:

WAPDA HYDEL POWER PROJECTS (RAB AND WACC CALCULATION)						
Development Block	2020-21	2019-20	2018-19	2017-18	2016-17	2015-16 (Only DBD)
RAB for return purpose	202,906	126,551	92,494	164,746	123,124	22,651
Debt: Equity	80:20	80:20	80:20	80:20	80:20	80:20
Cost of Debt	10.182%	9.928%	9.198%	12.648%	12.769%	11.927%
Cost of Equity	11.09%	17%	17%	17%	17%	17%
WACC	10.364%	11.342%	10.758%	13.518%	13.615%	12.941%
ROI	21,034	14,354	9,951	22,271	16,764	2,931

Issue No. V. Whether Petitioner's request for allowance of Depreciation charge and Ijara Rentals amounting to Rs 7,616 million, Rs 9,284 million, Rs 9,433 million and Rs 9,418 million for FY 2018, 2019, 2020 & 2021 respectively is justified?

96. The above referred amounts for depreciation charge and ijara rentals have been revised by the Petitioner vide letter dated January 15, 2020 as stated earlier. Below table shows the amount being claimed by the Petitioner for the FY 2016-17, 2017-18, 2018-19, 2019-20 and FY 2020-21:

Description	Projected FY 2020- 21	Projected FY 2019- 20	Audited FY 2018- 19	Audited FY 2017- 18	Audited FY 2016-17	Determin ed FY 2017-18	Determin ed FY 2016-17
	Rs. in million						
Depreciation Charge	7,656	7,610	7,513	5,026	5,262	5,961	5,445
Ijara Rental	1,690	1,857	1,842	2,571	3,037	2,589	3,460
Total	9,346	9,467	9,355	7,597	8,299	8,550	8,905

97. The Petitioner has submitted that the depreciation charge calculated on the basis of historical/ carrying cost of Fixed Assets despite revaluation adopted for Land, Building & Civil Works, Dam & Reservoir and Power Generation Plant Assets has been claimed for each year. Depreciation from FY 2016-17 to FY 2018-19 as per audited financial statements, whereas an increase in depreciation during FY 2018-19 is due to the full-year depreciation of Tarbela 4th extension and Golen Gol hydel power stations. The Petitioner has submitted that the depreciation is charged at the following rates:

Description	%age
Land	0%
Building & Civil Works	2%
Power Generation Plant	2%-7%
Transmission Equipment	4%
Dam & Reservoirs	1%
General Plant Assets	10%
Office Equipment	10%
Furniture and Fixtures	10%-25%
Transportation Equipment	25%





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98. Ijara Rentals relates to annuity-based payments of Ijara Rentals of SUKUK-II and SUKUK-III companies for different units of Tarbela Hydel Power Station as per agreed schedules. SUKUK-II has been redeemed during FY 2017-18. In FY 2019-20 & FY 2020-21 Ijara Rental has been taken as per terms of Ijara Rental Agreements of SUKUK III.

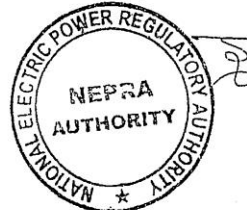
Description	Profit Rate	Tenor (year)	Grace Period (year)	Repayment (year)
SUKUK-II	6 month KIBOR-0.25%	10	4	6
SUKUK III	6 month KIBOR+1.75%	8	1	7

99. As per the Petitioner SUKUK-II has been redeemed during FY 2017-18. In FY 2019-20 & FY 2020-21 Ijara Rental has been taken as per terms of Ijara Rental Agreements of SUKUK III.
100. The Authority in the tariff determination of 2017-18 allowed the amounts for depreciation and Ijara Rental for the FY 2016-17 and 2017-18 subject to adjustment at actual on the basis of audited accounts of respective years. The audited statements for FY 2016-17, 2017-18 and 2018-19 have been relied upon to review the cost under this head. It was noted that the increase in depreciation charge amount for FY 2018-19 is due to full year depreciation of Tarbela 4th extension and Golen Gol hydel power stations.
101. As discussed earlier, depreciation of plant wise fixed asset parts such as "Transmission equipment" and "other assets" as provided in the submissions is not allowed due to lack of plant wise breakup. Therefore, the Authority decided not to include the same at this stage.
102. In view of the above, the following is allowed to the Petitioner on account of depreciation charge and Ijara Rental which shall be subject to adjustment at actual based on the accounts of FY 20 & 21 to be submitted at the next tariff petition:

Description	2020-21	2019-20	2018-19	2017-18	2016-17
	Rs. in million				
Depreciation Charge	6,869	6,826	6,771	4,593	4,665
Ijara Rental	1,690	1,857	1,842	2,571	3,037
Total	8,558	8,683	8,614	7,164	7,702

Issue No. VI. Whether other income claimed to be Rs 1,374 million for FY 2018 and Rs. 697 million each for FY 2019 to FY 2021 is justified?

103. The Petitioner in its tariff petition has submitted that the actual other income derived from "assets other than financial assets" for the period from FY 2016-17 to FY 2018-19 (audited) ranges from Rs. 698 million to Rs.1,374 million as against NEPRA determined Rs 363 million for FY 2017-18. Based upon the actual income for FY 2018-19 and considering the eight months actual income for FY 2019-20, misc. income for 2020-21 has been projected as Rs.698 million. The breakup of other income claimed by the Petitioner is given hereunder:





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Income from assets other than a financial asset	FY 2021-20	FY 2020-19	FY 2019-18	FY 2018-17	FY 2017-16
	Rs. in million				
Amortization of Grant	279	279	279	144	1,126
Income from lease of other property	94	94	94	90	83
Miscellaneous income	284	284	284	1,081	116
Income from non-utility operation	8	8	8	3	3
Interest income-advance to staff	1	1	1	2	1
Sales of scrap	29	29	29	32	16
Sales of stores	2	2	2	22	2
Total	698	698	698	1,374	1,347

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- WAPDA statement of Financial position as on 30th June 2019 at Para 11 page 27 it is stated that WAPDA invested Rs. 3,261,000 in following instruments;

Term deposit receipt	3,000,000
Innovative Investment Bank Ltd	261,000

- On maturity the balance invested in innovative Bank remained unpaid and case was lodged in Lahore High Court for recovery which was decided in favour of WAPDA and property was attached which has value of Rs. 220 million for recovery. There is no further development in the case.
- WAPDA may inform;
 - What is the current position of the case?
 - What was the cost of litigation?

Petitioner's Response:

- The investment in Term Deposit Receipt of Rs.3,000 mln was made as an initiative to establish Pension Fund for making payments of Post-Retirement Benefits to the active/ serving and retired employees in line with IAS-19.
 - Rs.261 mln represents the investment made in the innovative Investment Bank (Formerly Crescent Standard Investment Bank). On maturity, the balance remained unpaid, and hence the case was lodged with the Judicial Department of Lahore High Court for the recovery of the said amount. The Honourable Lahore High Court decided the case in favour of WAPDA Hydroelectric and attached the property which has a sale value of Rs. 220 million and appointed Court Auctioneers for recovery of this amount.
 - There has been no further development in the case.
 - The cost of litigation has no impact on the instant tariff petition
14. The Authority in the tariff determination of WAPDA for the FY 2017-18 allowed other income amounting to Rs. 330 million and Rs. 363 million for the FY 2016-17 and 2017-18 respectively. The allowed amount was required to be adjusted on actual based on audited accounts of the respective





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years. The other income allowed was proportionated on the basis of the capacity of each power station in order to show its impact on the tariff of each power station.

105. The other income for the FY 2016-17, 2017-18 and 2018-19 have been reviewed from the annual audited accounts of the respective years. The Petitioner has assumed the same amount as of FY 2018-19 i.e. Rs. 698 million for FY for FY 2019-20 & FY 2020-21. Accordingly, the amounts of other income as proposed by the Petitioner are found reasonable and allowed which shall be adjusted on actual in the next tariff petition based on account of FY 2020 & 21. The allowed numbers are tabulated as under:

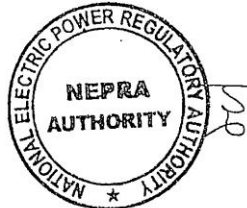
Other Income	FY 2021-20	FY 2020-19	FY 2019-18	FY 2018-17	FY 2017-16
			Rs. in million		
Determined	-	-	-	363	330
Claimed	698	698	698	1,374	1,347
Proposed/Assessed	698	698	698	1,374	1,347

Issue No. VII. Whether Petitioner's request for allowance of Regulatory Gap amounting to Rs 17,675 million, Rs 20,950 million & Rs 23,600 million and for FY 2018, 2019 & 2020 respectively is justified?

106. The above-referred claims were revised by the Petitioner vide January 15, 2020 as stated earlier.
107. According to the Petitioner, Regulatory Revenue Gap arose due to following variables:
- The prudently incurred actual O&M expenses were higher than estimates made by NEPRA while determining revenue requirement.
 - Late determination of tariff for FY 2017-18 followed by late notification of tariff by the GoP in Official Gazette. NEPRA determined tariff for FY 2017-18 took effect from 23-02-2018 after lapse of almost eight month.
 - Revenue Gap for FY 2015-16 has been reworked only with ROI on capital investment made in DBD which was previously disallowed by NEPRA in last determination.
 - Actual additions to the Capital Work in Progress (CWIP) remained higher than the estimates.
 - On the directions of the Ministry of Water Resources letter No. PF-06(03)2016-88 dated 28-03-2016 & No. 06(17)/2004-HP dated 22-12-2017, WAPDA has taken loan from commercial banks for advance payment of arrears/regular NHP to GoKP and Punjab. To comply with the MoWR above orders, WAPDA has to pay interest on the said loan from its revenue stream which was otherwise recoverable through tariff as pass through item.
 - Accordingly interest of Rs. 11,024/- million paid/accrued on the above loans have been included in the tariff petition.

108. Below is the summary of the revenue gap as claimed by the Petitioner:

Description	TOTAL				
	2015-16	2016-17	2017-18	2018-19	2019-20
NEPRA Determined					
O&M		12,346	14,092	14,092	14,092
Depreciation (At Carrying Cost)		5,445	5,961	5,961	5,961





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Ijara Rental		3,460	2,589	2,589	2,589
Return on Investment		26,110	28,202	28,202	28,202
Provision for Future Development	-	13,954	12,374	12,374	12,374
Misc. Income		(330)	(366)	(366)	(366)
Revenue Gap (apportioned)*		-	*3,008	*5,560	-
Total	-	60,985	65,860	68,412	62,852
* Revenue Gap allowed in earlier determination is apportioned in two years FY 2017-18 (23 Feb - 30 Jun) and FY 2018-19 (1st July-22 Feb) (Rs. 4463 M+Rs. 4102 M actual 2016-17)					
Accrued as per Audited/Provisional					
O&M	-	11,791	15,165	15,640	16,311
Depreciation (At Carrying Cost)	-	5,262	5,026	7,513	7,610
Ijara Rental	-	3,037	2,571	1,842	1,857
Return on Investment	-	24,960	24,364	30,505	34,173
Provision for Future Development	5,982	21,383	27,140	22,416	18,838
Misc. Income	-	(1,347)	(1,374)	(698)	(698)
Revenue Gap (apportioned)*	-	-	3,008	5,560	-
Total	5,982	65,087	75,901	82,778	78,091
Revenue Gap					
O&M		(555)	1,073	1,548	2,219
Depreciation (At Carrying Cost)		(183)	(935)	1,552	1,649
Ijara Rental		(423)	(18)	(747)	(732)
Return on Investment		(1,150)	(3,838)	2,303	5,971
Provision for Future Development	5,982	7,429	14,766	10,042	6,464
Misc. Income		(1,017)	(1,008)	(332)	(332)
Revenue Gap		-	-	-	-
Total	5,982	4,102	10,041	14,366	15,239
Total Revenue Gap					
Sales Revenue Accrued (To be Billed)	5,982	65,087	75,901	82,778	78,091
Sales Revenue (Actually Billed)	-	65,233	59,317	67,230	63,168
Revenue Gap	5,982	(146)	16,584	15,548	14,923
Reconciliation of Revenue Gap					
Gap - (Determined)-(Actual)	-	(4,248)	6,543	1,181	(316)
Gap - (Determined)-(Accrued)	5,982	4,102	10,041	14,366	15,239
Total	5,982	(146)	16,584	15,548	14,923

109. As per the discussion in the preceding paragraphs, the revenue gap allowed is given hereunder:

Description	2015-16	2016-17	2017-18	2018-19	2019-20	Total
Rs. in million						
Sales Revenue Accrued (To be Billed)	2,931	57,291	66,743	66,634	70,308	263,907
Sales Revenue (Actually Billed)	-	65,233	59,317	67,230	63,168	254,902
Revenue Gap	2,931	(7,942)	7,426	(596)	7,186	9,005

Issue No. VIII. Whether mark-up on NHP loans amounting to Rs.11,024 million is justified?

110. The Petitioner has claimed Rs. 11,024 million on account of interest paid on loans acquired for payment of NHP arrears to KPK and Punjab province. The Petitioner stated in the petition that on the direction of the Ministry of Water Resources WAPDA has taken a loan from commercial banks for advance payment of arrear/regular NHP to GoKP and Punjab. To comply with MoWR's above orders, WAPDA has to pay interest on the said loan from its revenue stream which was otherwise recoverable through





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tariff as pass-through item. Accordingly interest of Rs 11,024 million paid accrued on the above loans have been included in the tariff petition.

111. With regards to its inclusion, the Petitioner stated that Mark-up on NHP loans is justified as NEPRA disallowed the mark-up on loan for payment of NHP, at para 123 of the Tariff Determination dated 22-11-2017 for want of decision of CCI. Now, on the issue, CCI decision No.CCL9/1/2020(xii) dated 06-08-2020 has been received which is also provided to NEPRA

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- As required by NEPRA, WAPDA requires approval of CCI to recover the markup amounts. In this regard M/o Water Resources submitted a summary in November 2019 to CCI wherein, it was informed that the markup on the loan of Rs. 105.152 billion is to the tune of Rs. 6.675 billion. However
- In the current petition WAPDA is claiming an amount of Rs. 11.024 billion. This constituted by it vide decision in Case No. CCI.7/1/2019.
- In principle we support the recovery of the markup through tariff since, WAPDA has already accumulated and disbursed the said amount.

Petitioner's response:

- As per lending terms and conditions mark-up of Rs.11,024 Mln was accrued on the loans taken for advance payment of NHP arrears to provinces upon the directions of GoP. The Summary for approval of CCI was also moved by WAPDA for the same amount of mark-up and likewise claimed in tariff petition based upon the decision of CCI.
112. The Authority in the Decision dated May 25, 2016 gave the following reasoning for denying the cost of interest on loan taken for payment of NHP to provinces and instead directed the Petitioner to raise this issue at CCI level. The relevant extract of the decision is reproduced hereunder:

"It may be noted that the Petitioner revenue requirement approved for FY 2016 is ~ Rs 89 billion. The revenue requirement covers the expense and WACC based return on investment. Therefore, the Petitioner doesn't have the capacity to pay the 25 billion in the current FY to KPK out of his own revenue stream. If the Petitioner is required to pay the arrear amount of Rs 25 billion in the current fiscal year to Go KPK through a loan, then as a matter of principle, interest cost will be a prudent and justifiable cost which would be risen due to implementation of the CCI decision for which the Petitioner cannot be held liable. Having said that, in our opinion, since the Federal Government has already agreed to include the interest charge through CCI, in the agreed NHP arrears of Rs 70 billion in the coming period, therefore, Rs 1.875 billion or actual interest cost may be allowed when the backing of CCI becomes available. As CCI undisputedly, is the right forum to deal in the matter related to NHP payable to the provinces including matters related to NHP financing cost. In view thereof, the request for allowance of interest cost amounting to Rs 1.875 billion is disallowed."

113. The Petitioner has informed that the matter was raised at CCI and it accordingly made the following decision in case No CCI.9/01/2020(xii) dated 06.08.2020:





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As the issue doesn't pertain to CCI, recovery through tariff of mark up on bilateral Islamic/commercial loans obtained by WAPDA for payment of Net Hydel Profit to the Government of Khyber Pakhtunkhwa and Punjab, will be determined by NEPRA

114. WAPDA further submitted that for this purpose, it obtained the following Diminishing Musharaka loans and now collectively owe an interest amount of Rs 11,024 by the end of FY 2020.

Loan	Bank	Amount	terms	Principal Repaid
		Rs billion		
1.	HBL	38.12	6 months KIBOR – 50bps	27-12-2019
2.	UBL	42.032	6 months KIBOR – 21bps	22-01-2019
3.	Meezan	25	6 months KIBOR – 35bps	21-06-2017
		105.152		

Financial Year	Accounts Status	Account Head	Financial Statement Note #	Amount (Mln Rs)
FY 2016-17	(Audited)	Int. on Diminishing Musharaka	29 & 29.1	1,443
FY 2017-18	(Audited)	Int. on Diminishing Musharaka	29 & 29.1	3,299
FY 2018-19	(Audited)	Int. on Diminishing Musharaka	29 & 29.1	3,887
FY 2019-20	(Provisional)	Int. on Diminishing Musharaka	-	2,395
				11,024

115. The Authority noted that the amount of Rs 11.024 billion claimed has risen due to Ministry of Water Resource's direction to the Petitioner for early payment of NHP arrears/regular to Provinces the principal amount of which has already been made a part of allowed tariff. The Authority is of the opinion that the Petitioner complied with the direction of the government which has caused the Petitioner to incur extra cost in term of interest. And now it is the liability parked on the Petitioner's books. The Authority therefore, decided —that the amount being one time and computed based on a rate already lower than KIBOR — to allow this cost to the Petitioner as its liability. This treatment is also endorsed by Ministry of PD& SI. Further since the interest accounts for FY 2020 is not finalized therefore, the amount of Rs 2,395 million being provisional in nature shall be adjusted on actual at the next tariff petition.

Issue No. IX. Whether the plant wise outages schedule claimed in the petition is justified?

116. In response to this issue the Petitioner stated that it is the largest and bona fide generator of Hydel Power and is operating 21 Hydel Power Station, having a total installed capacity of 8420 MW. Most of Hydel Power Stations are in operation for the last 40 - 50 years. Due to aging, these plants require frequent repair and maintenance. Further the maintenance activities of generating units are largely planned according to the Outages Allowance allowed under Schedule 2 of the PPA with CPPA-G. According to the Petitioner, Utmost efforts are made to carryout maintenance activities in the lean

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water period to avoid generation loss and to ensure maximum availability of power in high flow period. Major upgradation/ refurbishment activities for enhancement of efficiency, useful life and reliability of some of the generating units are currently underway. As a most feasible option WAPDA & CPPA-G are working on appropriate amendment in the PPA to cater these activities.

117. The Authority reviewed the PPA signed between the CPPA-G and the Petitioner including the agreed outages (Forced and Scheduled) hours for 13 of the WAPDA's Stations and also reviewed the data submitted by the Petitioner to NEPRA pursuant to Performance Standards (Generation) Rules, 2009. It was noted that a number of units of Tarbela, Mangla, Ghazi Barotha, Warsak and Chashma hydel power stations have availed higher outages hours than allowed in the PPA for FY 2018-19 which is concerning. Keeping in view the above, the Petitioner is directed to submit the detailed analysis of higher outages of hydel power stations in comparison with that allowed as per their PPA within one month for the consideration of the Authority.
118. Furthermore, WAPDA and CPPA-G is also directed to finalize the PPAs for the remaining WAPDA hydel power stations at the earliest and submitted the same to the Authority in the next tariff petition which shall have a clear mechanism wherein any violation into an agreed outages hours of all plants beyond the reasonable control of the Petitioner should be penalized and capacity payment withheld.

Issue No. X. Whether the claimed capacity of power plants is justified in the absence of Capacity Tests as per PPAs?

119. In response to this issue, the Petitioner stated that as per Article 10.1 of PPA, "CPPA-G shall have the right to demand the capacity tests of any WAPDA Power Station not more than once in every five years one by one of any its individual units during such time when the required head, discharge and system conditions are available in order to determine their rated capacities". Further, the plants of Wapda-hydroelectric are always available for Capacity Test and that CPPA-G carried out Capacity Tests of Tarbela on 15.09.2015, Ghazi Barotha on 16.09.2015, and Mangla on 15.09.2017 and Chashma on 12.11.2019. The Petitioner further informed that on the request of CPPA-G, WAPDA vide letter dated 27.07.2020 has conveyed a suitable period for next capacity testing of its power plants which is based upon hydrological condition. Presently, WAPDA and CPPA-G are in the process of finalizing the Protocols for intended capacity testing.
120. The Authority while reviewing the PPA observed that Article 10 of PPA clearly states that the CPPA-G shall have the right to demand capacity test not more than every five years. It was also noted by the Authority that CPPA-G vide its letter dated July 20, 2020 requested WAPDA that the testing procedure/Protocol and Schedules may be sent to CPPA-G at the earliest so that testing of WAPDA Plants can be conducted in a timely manner. WAPDA vide its letter dated July 27, 2020 had provided the following demonstration period for the power plants:

Sr. No.	Project	Proposed Period
1	Tarbela, Ghazi Barotha, Tarbela 4 th Ext. & Mangla HPP	August – September
2	Chashma & Jinnah Hydel Power Stations	September – October
3	Golen Gol Power Station	July – August
4	Small Hydel Power Stations	April – August

121. NEPRA vide its letter dated August 11, 2020, also directed CPPA-G as follows:





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"It is apprised that NEPRA Professionals shall also witness as observers to Capacity Test of WAPDA Hydropower Projects. You are directed to send the Testing Procedure/Protocol and Schedule for our review at the earliest and inform in advance of the tests for making necessary arrangements."

122. WAPDA during the hearing also submitted that presently WAPDA and CPPA-G are in the process of finalizing the Protocols for intended capacity testing. With regard to capacity tests and keeping in view the PPA requirements, the Authority, therefore, directs WAPDA and CPPA-G to finalize the procedure/protocols for testing of WAPDA Hydro Power Projects at the earliest. The Petitioner is further directed to start the capacity testing of small hydropower projects as per the demonstration period being proposed by WAPDA and to complete the capacity testing of HPP (21 no. of hydel power stations) within a time period of one year and in case of further delay, the reasons and justifications for such delay shall be communicated to the Authority in writing for seeking approval of time delay.

Issue No. XI. Whether the current mechanism for allocation of costs/expenses for each of the project into water side and power side is justified?

123. On this issue, the Petitioner stated that section 26 of WAPDA Act, 1958 affirms that;
1. The Authority shall maintain complete and accurate books of accounts in such form as may be prescribed by it.
 2. Provided that separate accounts shall be maintained for all schemes and transaction relating to power.
124. NEPRA allows WAPDA Tariff on cost-of-service basis and Section.17 (3)(i) of NEPRA Tariff Standard and Procedures Rules 1998, stipulates that where tariff are set on cost-of-service basis, Tariff shall be determined to allow licensee the recovery of any and all cost prudently incurred to meet the demonstrated needs of their customers. Accordingly, for each Fiscal Year, WAPDA prepare separate accounts comprising cost /expenses in respect of the Hydropower Stations and development schemes included in its Generation License, and get them audited as per NEPRA's specified scope, and submit to NEPRA.
125. A more detailed discussion with respect to Diamir Basha Dam apportionment has already been discussed in the respective issue however, it is also important to highlight that WAPDA Power Wing (WAPDA Hydroelectric) accounts are separated from its water wing and a separate License has also been given by NEPRA. Further, on an annual basis WAPDA hydroelectric accounts are audited which is being made the basis of an assessment of annual revenue requirement. Therefore, this issue stand addressed.

Other Issues

Net Hydel Profit (NHP)

126. The Petitioner informed that Article 161(2) of the Constitution of Islamic Republic of Pakistan, 1973 provides for the payment of Net Hydel Profit to the Provinces. The payment of NHP has been proposed as per the CCI decision dated 29.02.2016 and CCI decision dated 16.12.2016 as well as NEPRA determinations dated 13.11.2015, 08.01.2016, 22.11.2017 and 14.12.2017 and GoP Gazette Notifications dated 07.03.2016, 24.06.2016 and 23.02.2018. Pursuant to the above referred CCI





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decisions and NEPRA determinations, Payment of Regular NHP to the Provinces on the generation of hydropower stations situated in their territorial jurisdiction has been proposed at enhanced rate of Rs.1.213/kWh. Further, in order to ensure uniformity in WUC rates for AJK as per the spirit of ECC decision dated 20.03.2019, NEPRA may approve the revised enhanced rates to take effect prospectively from the date of notification of revised tariff by MoWR, GoP, Islamabad in the Official Gazette.

127. The Petitioner further stated that NEPRA issued its revised order of WAPDA Hydroelectric Bulk Supply Tariff for FY 2017-18, wherein payment of Regular NHP to the Provinces during FY 2017-18 was approved at uncapped NHP rate of Rs.1.10 per kWh as per the actual generation from hydropower stations located in their territorial jurisdiction effective from 01.07.2017. Decision of NEPRA was notified by GoP on 23.02.2018, therefore, WAPDA Hydroelectric could not bill NHP at the revised rates till 22.02.2018. NHP arrears in respect of unbilled amount of Regular NHP from 01.07.2017 to 22.02.2018 during FY 2017-18 works out to Rs.618 million for KPK and Rs.5,842 million for Punjab as under:

Arrears - NHP to KP

Sr. No.	Power Station	Capacity (MW)	2017-18 - 1st Jul-22 Feb		
			Generation (GWh)	Rate (Rs/kWh)	Amount (Min Rs)
1	Tarbela	3,478	10,106	0.055	556
2	Warsak	243	560	0.055	31
3	Duber Khawar	130	261	0.055	14
4	Ailal Khawar	121	114	0.055	6
5	Khan Khawar	72	80	0.055	4
6	Jabban	22	52	0.055	3
7	Dargal	20	51	0.055	3
8	Kuram Garhi	4	9	0.055	0
9	Chitral	1	1	0.055	0
10	Tarbela 4th Ext.	-	-	-	-
11	Golen Gol	-	-	-	-
	Total	4,091	11,234		618

Arrears - NHP to Punjab

Sr. No.	Power Station	Capacity (MW)	2017-18 - 1st Jul-22 Feb		
			Generation (GWh)	Rate (Rs/kWh)	Amount (Min Rs)
1	Ghazi Brotha	1450	4,323	1.155	4,993
2	Chashma	184	493	1.155	569
3	Jinnah HPP	96	131	1.155	151
4	Rasul	22	49	1.155	57
5	Nandipur	14	26	1.155	30
6	Shadilwal	14	16	1.155	18
7	Chichoki	13	20	1.155	23
8	Ronala Khurd	1	1	1.155	1
	Total	1,794	5,058		5,842

Government of KPK's Intervention

128. WAPDA has included NHP at the rate of Rs. 1.213 per KWh in its present tariff petition which needs to be Rs. 1.404 per KWh for the year 2020-21 as the 5% indexation allowed according to the agreement has not been applied every year previously which should start from Rs 1.10 per kWh from FY 2016. The Province, therefore, demands readjustment in the proposed tariff accordingly. Besides, the decision must be given effect and thus the arrears and differential shall be worked out and included in the tariff of WAPDA as past year adjustments. WAPDA proposes NHP @ 1.213 Rs/kWh, which should be increased @ 1.404 Rs/kWh for the year 2020-21. WAPDA also miscalculated NHP arrears





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amounting Rs. 618 million, however, it should be also determined for the missing indexation since 2015 which amounts to Rs. 7,949 million.

129. WAPDA considered Gomal Zam Dam as a project of FATA, however after the 25th amendment, erstwhile FATA is now part of Khyber Pakhtunkhwa and NHP for the project should be paid to GoKP. NHP for Gomal Zam hydro power project should be paid to GoKP along with the arrears amounting Rs. 108 million from the date of notification of ex-FATA merger with Khyber Pakhtunkhwa.
130. It may be noted that regular NHP for F.Y 2018-19 amounting Rs. 13.6 billion and regular NHP for F.Y 2019-20 amounting Rs. 23.2 billion still needs to be paid to the Government of Khyber Pakhtunkhwa. In addition, regular NHP amounting to Rs. 11.5 billion is also due for the period of July-September 2020 (F.Y. 2020-21). These liabilities add up to a total of Rs. 48.3 billion.
131. It was noted that the Authority in the last determination allowed indexation at 5% at the rate of Rs 1.10 per kWh which increased the rate of NHP to Rs 1.155 per kWh. CCI in its decision dated 16.12.16 allowed "Payment of NHP to Government of Punjab @ Rs 1.10 per unit on the analogy of Government of KPK, generated from Hydel Power Station located in Punjab for the FY 2016-17". The same rate indexed at 5% was made applicable on Punjab based WAPDA's plant from the same year in the WAPDA's tariff. The Petitioner has now indexed the rate by 5% to Rs 1.2128 per kWh for FY 2021.
132. It came to the knowledge of the Authority that CCI which is the relevant body has not approved indexation on the rate of Rs 1.10 per kWh. This issue was also pointed out in the Report on Power Sector, prepared by the Committee for Power Sector Audit, Circular Debt Resolution & Future Roadmap. The relevant extract is reproduced below:

440. There are massive variations in NHP estimates based on widely different interpretations of KCM formula by stakeholders. For example, as per existing practice adopted by NEPRA, NHP for FY2020 would be Rs. 38.75 billion at Rs. 1.15 per kWh while using KP's version of KCM, the NHP figure works out to be more than Rs. 400 billion.

441. It is worth mentioning that for private hydro IPP, the rate for use of water resource as per the Power Policy 2015 approved by CCI is Rs. 0.425/kWh however, if the same resource (water) is used by the Federal Government for hydroelectric plant in the province, the rate shoots up to almost three times to Rs. 1.15/kWh. NEPRA has approved annual indexation of 5% on the current rate of Rs. 1.10 per kWh from FY 2016 which, if applied, would increase the rate to Rs. 1.273 per kWh for FY 2019-20.

442. The Committee did not however find any record which shows that the CCI has approved such indexation over the rate of PKR. 1.10/kWh. Regardless of nomenclature, essentially it is an issue of water pricing, for which, the formula generally used globally is based on unit of electricity produced.

443. Therefore, there is an urgent need to review the situation while learning from countries with significant hydro generation such as Brazil, China, Canada & India. In light of the economic strain it is causing, a consensus has to be developed between stakeholders on a revised and sustainable NHP formula which the consumers and the power sector economy can afford.





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133. Therefore, based on the above discussion, NHP rate of Rs 1.10 per kWh has been assumed by the Authority going forward for FY 2021 for Punjab and KP based hydropower stations and excess past payment made as a result of the application of 5% indexation should, therefore, be adjusted by the Petitioner on yearly basis. However, if CCI make any decision with respect to indexation, the Authority may consider it as per the applicable law.
134. The Authority also observed that at the time of last determination, no NHP was made a part of the generation of Gomal Zam power project as the project was located in the erstwhile FATA region. Through 31st Constitutional amendments in the end of May 2018, FATA region where the project is located became a part of KPK region. Therefore, effective from July 2018, NHP from this project has been allowed which for FY 2019 and FY 2020 @ Rs 1.10 per kWh works out as Rs 35.2 million & Rs 57.73 million respectively. These arrear totalling Rs 95 million shall become a part of revenue gap to be recovered in one year from the date of notification.

Water Usage Charges (WUC)

135. On this charges, the Petitioner informed that it has been making payment of Water Usage Charges (WUC) to GoAJ&K @ Rs.0.15/kWh on the generation of Mangla Hydel Power Stations, in terms of clause 5.6 of the Mangla Dam Raising Agreement 2003, and Revised Order passed by the NPRA at Sr.1 of the tariff determination dated 14.12.2017. According to the Petitioner it later, filed a Tariff Modification Petition vide letter No.GMFP/CPCC/4525/241 dated 28.11.2019 for enhancement of WUC rates from Rs.0.15/kWh to Rs.1.155/kWh payable to GoAJ&K at par with the rate of NHP payable to provinces as necessitated in ECC decision in Case No.ECC 76/11/2019 dated 20-03-2019 notified vide MoWR, GoP Islamabad letter No.6 (17)/2004-HP dated 28.03.2019. NEPRA has held the hearing on this petition on 03.06.2020, however, the decision of NEPRA on this Tariff Modification Petition is still to come. Through instant Petition, the Petitioner requested NEPRA to determine/ approve the revised rate of Rs.1.213/kWh (at par with above proposed revised rate of NHP payable to provinces) in respect of WUC payable to GoAJ&K on the generation of Mangla HPS which shall be applied /paid prospectively only, once the recovery through tariff begins after notification of NEPRA determined tariff by MoWR, GoP Islamabad, in compliance of the instructions of GoP contained at Sr.No. i & vii of the aforementioned ECC decision.
136. The Authority noted that the request for enhancing WUC from Mangla Power Station from Rs 0.15 to Rs 1.10 per kWh was rejected by the Authority through its decision in the matter of Decision of the Authority in the matter of Tariff Modification Petition for Revision of Net Hydel Profit (NHP)/Water Use Charges (WUC) Rate Payable to Government of AJ&K on Generation from Mangla Power Station dated July 23, 2020 wherein the Authority made the following basis for rejections:

3.1.3 Therefore, the Authority is of the view, that for NHP to be given, the power houses, owned and operated by federal government have to be situated in the province, and AJ&K is not the province as per the Constitution of Pakistan therefore, enhancing current WUC rate of Rs 0.15 per kWh to the NHP rate of Rs 1.10 per kWh is not justified.

3.2.2 The Authority is of the considered opinion that, the payment of Water Usage Charges (WUC) to AJK is 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, which has been accordingly incorporated for payment of WUC to





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AJ&K in the tariff of WAPDA Hydro Electric. This warrants that if any change in rate is to be incorporated in the WAPDA hydroelectric tariff the underlying agreement i.e. Mangla Dam Raising agreement has to be amended first and the same has also been stated in the above mentioned ECC decision, which is reproduced as under:

"ix. An agreement incorporating the above recommendation may be signed between the Government of AJK and other stakeholders of Government of Pakistan, amending the Mangla Raising ring Agreement of 2003 to the extent of WUC and terms of power supply to AJK."

3.2.3 The Authority noted that, the Mangla Raising Agreement of 2003 is yet to be amended, therefore, in the absence of revision in the base agreement; revising the rate from current Rs. 0.15 per kWh is not justified at this stage

137. The Petitioner has not given any evidence which shows revision in the Mangla Raising Agreement 2003 to the extent of changing the WuC from Rs 0.15 per kWh to Rs 1.10. Therefore, for tariff assessment, the Authority has decided to maintain the previous rate of Rs 0.15 per kWh WUC applicable to the Mangla power station's generation.
138. In view of discussions in the preceding paragraphs, the total revenue requirement of the Petitioner approved for the financial year 2021 is given below, station wise revenue requirement is attached as Annex - 1:

Revenue Requirement	FY 2015-16		2016-17		2017-18		2018-19		2019-20		2020-21	
	Requested	Assessed	Requested	Assessed	Requested	Assessed	Requested	Assessed	Requested	Assessed	Requested	Assessed
	Million Rs											
O&M		10,693	11,791	12,729	15,165	14,562	15,640	15,937	16,311	17,622	18,126	
Depreciation (At Carrying Cost)		4,665	5,262	4,593	5,026	6,771	7,513	6,826	7,610	6,869	7,656	
Lease Rental		3,037	3,037	2,571	2,571	1,842	1,842	1,857	1,857	1,690	1,690	
Return on Investment		23,460	24,960	22,945	24,364	28,643	30,505	32,033	34,173	28,330	29,543	
Provision for Future Development	5,382	16,764	21,383	22,271	27,140	9,851	22,416	14,354	18,838	21,030	23,294	
Misc. Income		(1,347)	(1,347)	(1,374)	(1,374)	(634)	(638)	(698)	(698)	(698)	(698)	
Total Revenue Requirement	5,982	57,291	65,087	63,734	72,833	61,071	77,218	70,308	78,091	74,842	79,610	
Regulatory Revenue Gap												
FY - 2015-16 - Actual (ROI on DBD)										2,931	5,982	
FY - 2016-17 - Actual										(7,942)	(146)	
FY - 2017-18 - Actual										7,426	16,584	
FY - 2018-19 - Actual										(597)	15,548	
FY - 2019-20 - Provisional										7,186	14,923	
Total Revenue Gap										9,005	52,891	
Total Revenue Requirement with Rev. Gap										83,846	132,501	
Mark up on advance NHP paid to provinces										11,024	11,024	
Total Revenue Requirement of WAPDA										94,870	143,525	
Hydel Levies												
NHP - Regular										27,896	30,695	
Arrears of NHP/WUC to Provinces for FY 2017-18.											6,460	
Gomal Zam NHP Arrear FY 2019 & FY 2020										95		
Mangla WUC										712	5,753	
IRSA Charges										151	151	
Total Hydel Levies										28,853	43,058	
Total - With Hydel Levies										123,724	186,584	
Generation (GWh)										30,104	30,104	
Average Tariff (Rs/kWh)										4.11	6.20	





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ORDER

1. WAPDA Hydroelectric (Petitioner) is allowed to charge the Central Power Purchasing Agency Guarantee Limited (CPPA-G) the following tariff of each plant at the bus bar of its hydroelectric power stations connected directly or indirectly to the transmission system of NTDC:

Sr.No.	Power Stations	Variable Rate	Fixed Charges			Hydel Levies			
			Fixed Rate	Revenue Gap	Interest on Loans for NHP	NHP Regular	WUC	NHP Arrears	IRSA
		Rs/kWh	Rs/kW/M	Rs/kW/M	Rs/kW/M	Rs/kWh	Rs/kWh	Rs/kW/M	Rs/kWh
1	Tarbela	0.043	421.940	(425.917)	63.837	1.1000		-	0.005
2	Warsak	0.107	748.198	64.332	63.837	1.1000		-	0.005
3	Duber Khawar	0.215	1,768.284	369.329	63.837	1.1000		-	0.005
4	Allai Khawar	0.215	1,508.871	523.789	63.837	1.1000		-	0.005
5	Khan Khawar	0.211	1,592.305	213.254	63.837	1.1000		-	0.005
6	Jabban	0.275	2,881.467	3,505.165	63.837	1.1000		-	0.005
7	Dargai	0.088	826.772	(587.876)	63.837	1.1000		-	0.005
8	Kuram Garhi	0.255	1,924.961	343.330	63.837	1.1000		-	0.005
9	Chitral	0.343	2,164.941	(4,020.787)	63.837	1.1000		-	0.005
10	Tarbela 4th Ext.	0.134	781.992	591.948	-	1.1000		-	0.005
11	Golen Gol	0.344	2,446.539	1,923.793	-	1.1000		-	0.005
12	Gomal Zam	0.634	3,092.300	(470.671)	-	1.1000		454.646	0.005
13	Ghazi Brotha	0.079	777.899	434.090	366.499	1.1000		-	0.005
14	Chashma	0.191	1,524.435	1,403.294	366.499	1.1000		-	0.005
15	Jinnah HPP	0.267	1,521.280	1,113.603	366.499	1.1000		-	0.005
16	Rasul	0.157	895.550	(34.025)	366.499	1.1000		-	0.005
17	Nandipur	0.132	833.858	(1,222.819)	366.499	1.1000		-	0.005
18	Shadiwal	0.178	833.830	(790.848)	366.499	1.1000		-	0.005
19	Chichoki	0.176	866.551	(870.862)	366.499	1.1000		-	0.005
20	Renala Khurd	0.342	1,831.918	(3,455.565)	366.499	1.1000		-	0.005
21	Mangla	0.067	715.090	41.611	-	-	0.150	-	0.005

2. The "Revenue Gap", "Interest on Loans for NHP" and "NHP Arrears" components of tariff as indicated above shall be applicable for a period of one year from the date of its notification by GoP, after which the tariff without these three tariff components shall be applicable.





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3. The order is to be intimated to the Federal Government for notification in the official gazette under section 31 (7) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997.

AUTHORITY

Rehmatullah Baloch

Member

Engr. Rafique Ahmed Shaikh

Member

Tauseef H. Farooqi

Chairman



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Revenue Requirement

Tarbela

	2016-17	2017-18	2018-19	2019-20	2020-21
Actual	Audited	Audited	Audited	Projected	Projected
OSM	4,087	4,668	5,155	5,734	6,373
Depreciation (At Carrying Cost)	336	280	467	511	534
Ijara Rental	3,037	2,571	1,842	1,857	1,890
Return on Investment	1,123	-1,166	1,162	1,166	1,022
Provision for Future Development	8,447	11,222	4,110	5,929	8,686
Misc. Income	(1,117)	(165)	(225)	(225)	(225)
Total Revenue Requirement w/o Rev. Gap	15,912	19,742	12,552	14,971	18,080

Regulatory Revenue Gap

FY - 2016-16 - Actual (ROI on DBD)

FY - 2016-17 - Actual

FY - 2017-18 - Actual

FY - 2018-19 - Actual

FY - 2019-20 - Provisional

Total Revenue Gap

Total Revenue Requirement with Rev. Gap

Mark up on advance NRP paid to provinces

Total Revenue Requirement of WAPDA

1,477	(16,912)	(3,564)	(579)	1,801	(17,776)	304	2,664	2,664	2,664
103	(549)	364	54	214	188	2,452	186	186	2,638

Warsak

	2016-17	2017-18	2018-19	2019-20	2020-21
Actual	Audited	Audited	Audited	Projected	Projected
OSM	960	1,230	1,203	1,252	1,398
Depreciation (At Carrying Cost)	62	73	75	75	75
Ijara Rental	116	199	247	238	201
Return on Investment	590	784	287	414	607
Provision for Future Development	(22)	(15)	(16)	(16)	(16)
Misc. Income	(22)	(15)	(16)	(16)	(16)
Total Revenue Requirement w/o Rev. Gap	1,735	2,271	1,796	1,962	2,265

103	(549)	364	54	214	188	2,452	186	186	2,638
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Dubair

	2016-17	2017-18	2018-19	2019-20	2020-21
Actual	Audited	Audited	Audited	Projected	Projected
OSM	116	134	163	146	159
Depreciation (At Carrying Cost)	116	108	308	309	313
Ijara Rental	2,814	2,784	2,794	1,889	2,090
Return on Investment	316	419	154	222	325
Provision for Future Development	(49)	(0)	(0)	(0)	(0)
Misc. Income	(49)	(0)	(0)	(0)	(0)
Total Revenue Requirement w/o Rev. Gap	3,353	3,445	3,419	2,565	2,887

55	2,125	1,199	(872)	(1,632)	576	3,453	100	100	3,562
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Hydel Levies

NHP - Regular

Areas of NHP/NUC to Provinces for FY 2017-18.

Gomal Zam NHP Area FY 2019 & FY 2020

Mangla WUC

IRSA Charges

Total Hydel Levies

Total - With Hydel Levies

	2016-17	2017-18	2018-19	2019-20	2020-21
Actual	Audited	Audited	Audited	Projected	Projected
OSM	11,880	-	-	-	-
Depreciation (At Carrying Cost)	-	-	-	-	-
Ijara Rental	-	-	-	-	-
Return on Investment	-	-	-	-	-
Provision for Future Development	-	-	-	-	-
Misc. Income	-	-	-	-	-
Total Revenue Requirement w/o Rev. Gap	11,880	-	-	-	-

851	-	-	-	-	-	851	-	-	-
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Revenue Requirement

Allai

Unit	2016-17 Audited	2017-18 Audited	2018-19 Audited	2019-20 Projected	2020-21 Projected
O&M	119	151	183	169	184
Depreciation (At Carrying Cost)	123	518	468	468	469
Iljara Rental					
Return on Investment	1,753	1,695	1,692	1,450	1,336
Provision for Future Development	294	390	143	206	302
Misc. Income	(0)	(6)	(1)	(1)	(1)
Total Revenue Requirement w/o Rev. Gap	2,288	2,746	2,466	2,294	2,290

Regulatory Revenue Gap

FY - 2015-16 - Actual (ROI on DBD)

FY - 2016-17 - Actual

FY - 2017-18 - Actual

FY - 2018-19 - Actual

FY - 2019-20 - Provisional

Total Revenue Gap

Total Revenue Requirement with Rev. Gap

Mark up on advance NHP paid to provinces

Total Revenue Requirement of WAPDA

51	31
1,161	928
1,020	535
(639)	(495)
(833)	(813)
761	184
3,051	1,623
93	55
3,144	1,678

Khan

Unit	2016-17 Audited	2017-18 Audited	2018-19 Audited	2019-20 Projected	2020-21 Projected
O&M	181	180	193	223	243
Depreciation (At Carrying Cost)	94	110	193	194	194
Iljara Rental					
Return on Investment	1,146	1,126	1,122	753	824
Provision for Future Development	175	232	85	123	180
Misc. Income	(1)	(1)	(2)	(2)	(2)
Total Revenue Requirement w/o Rev. Gap	1,595	1,647	1,592	1,291	1,439

Jabban

Unit	2016-17 Audited	2017-18 Audited	2018-19 Audited	2019-20 Projected	2020-21 Projected
O&M	94	101	118	151	162
Depreciation (At Carrying Cost)	118	113	142	142	142
Iljara Rental					
Return on Investment	514	489	507	514	440
Provision for Future Development	53	71	26	38	55
Misc. Income	(1)	(0)	(1)	(1)	(1)
Total Revenue Requirement w/o Rev. Gap	778	774	752	843	798

9	568
365	365
(32)	(32)
15	15
525	525
1,723	1,723
17	17
1,740	1,740

Unit	2016-17 Audited	2017-18 Audited	2018-19 Audited	2019-20 Projected	2020-21 Projected
Hydel Levies					
NHP - Regular					
Areas of NHP/WUC to Provinces for FY 2017-18.					
Gomal Zam NHP Aneer FY 2019 & FY 2020					
Mangla WUC					
IRSA Charges					
Total Hydel Levies					
Total - With Hydel Levies					

509	329
2	1
512	330
3,655	2,008

149	149
1	1
149	149
1,869	1,869



Revenue Requirement

	Dargai					Kurram Garhi					Chitral				
	2016-17	2017-18	2018-19	2019-20	2020-21	2016-17	2017-18	2018-19	2019-20	2020-21	2016-17	2017-18	2018-19	2019-20	2020-21
Unit	Audited	Audited	Audited	Projected	Projected	Audited	Audited	Audited	Projected	Projected	Audited	Audited	Audited	Projected	Projected
OGM	86	92	116	137	147	48	52	65	77	83	12	13	16	19	21
Depreciation (At Carrying Cost)	1	1	2	2	2	1	1	0	0	0	2	2	1	1	1
Ijara Rental															
Return on Investment	9	10	11	11	9	1	3	4	4	4	4	4	4	4	3
Provision for Future Development	49	65	24	34	50	10	13	5	7	10	2	3	1	2	2
Misc. Income	(1)	(0)	(2)	(2)	(2)	(0)	(0)	(1)	(1)	(1)	(0)	(1)	(0)	(0)	(0)
Total Revenue Requirement w/o Rev. Gap	144	167	150	181	206	60	68	74	88	97	21	21	22	26	27
Regulatory Revenue Gap															
FY - 2015-16 - Actual (ROI on DBD)					8										0
FY - 2016-17 - Actual					(46)										12
FY - 2017-18 - Actual					(14)										(3)
FY - 2018-19 - Actual					(61)										(30)
FY - 2019-20 - Provisional					(28)										(27)
Total Revenue Gap					(141)										(48)
Total Revenue Requirement with Rev. Gap					65										(21)
Mark up on advances NHP paid to provinces					15										1
Total Revenue Requirement of WAPDA					80										(20)

Hydel Levies	2016-17	2017-18	2018-19	2019-20	2020-21	2016-17	2017-18	2018-19	2019-20	2020-21	2016-17	2017-18	2018-19	2019-20	2020-21
NHP - Regular					98										4
Areas of NHP/WUC to Provinces for FY 2017-18.															0
Gomal Zam NHP Arrear FY 2019 & FY 2020															4
Mangla WUC															(16)
IRSA Charges															
Total Hydel Levies					98										
Total - With Hydel Levies					179										



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Revenue Requirement

Ghazi Barotha

Golen Gol

Unit	2016-17 Audited	2017-18 Audited	2018-19 Audited	2019-20 Projected	2020-21 Projected	2016-17 Audited	2017-18 Audited	2018-19 Audited	2019-20 Projected	2020-21 Projected	2016-17 Audited	2017-18 Audited	2018-19 Audited	2019-20 Projected	2020-21 Projected
Revenue Requirement															
OSM															
Depreciation (At Carrying Cost)															
Water Rental															
Return on Investment															
Provision for Future Development															
Misc. Income															
Total Revenue Requirement w/o Rev. Gap															
Regulatory Revenue Gap															
FY - 2015-16 - Actual (ROI on DBD)															
FY - 2016-17 - Actual															
FY - 2017-18 - Actual															
FY - 2018-19 - Actual															
FY - 2019-20 - Provisional															
Total Revenue Gap															
Total Revenue Requirement with Rev. Gap															
Mark up on advance NHP paid to provinces															
Total Revenue Requirement of WAPDA															

Unit	2016-17 Audited	2017-18 Audited	2018-19 Audited	2019-20 Projected	2020-21 Projected	2016-17 Audited	2017-18 Audited	2018-19 Audited	2019-20 Projected	2020-21 Projected	2016-17 Audited	2017-18 Audited	2018-19 Audited	2019-20 Projected	2020-21 Projected
Hydel Levies															
NHP - Regular															
Amort of NHP/WUC to Provinces for FY 2017-18															
Conal Zam NHP Amort FY 2019 & FY 2020															
Mangle WUC															
IRSA Charges															
Total Hydel Levies															
Total - With Hydel Levies															



Revenue Requirement

Chashma

Unit	2016-17	2017-18	2018-19	2019-20	2020-21
	Audited	Audited	Audited	Projected	Projected
Q&M	971	1,031	1,171	1,280	1,418
Depredation (At Carrying Cost)	426	439	481	510	515
Ijara Rental					
Return on Investment	1,481	1,426	1,368	1,374	1,174
Provision for Future Development	447	594	217	314	460
Misc. Income	(25)	(37)	(46)	(48)	(48)
Total Revenue Requirement w/o Rev. Gap	3,301	3,453	3,190	3,430	3,519

Jinnah

Unit	2016-17	2017-18	2018-19	2019-20	2020-21
	Audited	Audited	Audited	Projected	Projected
Q&M	288	320	377	396	436
Depredation (At Carrying Cost)	362	403	394	400	401
Ijara Rental					
Return on Investment	1,357	1,329	1,309	1,185	904
Provision for Future Development	233	310	113	164	240
Misc. Income	(1)	(916)	(149)	(149)	(149)
Total Revenue Requirement w/o Rev. Gap	2,219	1,446	2,044	1,996	1,932

Rasul

Unit	2016-17	2017-18	2018-19	2019-20	2020-21
	Audited	Audited	Audited	Projected	Projected
Q&M	101	128	130	152	168
Depredation (At Carrying Cost)	5	4	4	4	4
Ijara Rental					
Return on Investment	26	26	27	28	24
Provision for Future Development	53	71	26	38	55
Misc. Income	(3)	(1)	(5)	(5)	(5)
Total Revenue Requirement w/o Rev. Gap	182	228	182	215	246

Regulatory Revenue Gap

FY - 2015-16 - Actual (ROI on DBD)

FY - 2016-17 - Actual

FY - 2017-18 - Actual

FY - 2018-19 - Actual

FY - 2019-20 - Provisional

Total Revenue Gap

Mark up on advance NHP paid to provinces

Total Revenue Requirement of WAPDA

78	41
1,555	1,327
1,329	177
(53)	(128)
150	(135)
3,098	1,283
6,517	3,115
809	422
7,427	3,537

9	41
(24)	1,327
37	177
(33)	(128)
2	(135)
(9)	1,283
237	3,115
97	422
334	3,537

Hydel Levies

NHP - Regular
 Arrears of NHP/WUC to Provinces for FY 2017-18.
 Gomal Zam NHP Arrear FY 2019 & FY 2020
 Mangla WUC
 IRSA Charges
 Total Hydel Levies
 Total - With Hydel Levies

Unit	2016-17	2017-18	2018-19	2019-20	2020-21
	Audited	Audited	Audited	Projected	Projected
NHP - Regular	880				
Arrears of NHP/WUC to Provinces for FY 2017-18.					
Gomal Zam NHP Arrear FY 2019 & FY 2020					
Mangla WUC					
IRSA Charges					
Total Hydel Levies					
Total - With Hydel Levies					

Unit	2016-17	2017-18	2018-19	2019-20	2020-21
	Audited	Audited	Audited	Projected	Projected
NHP - Regular	328				
Arrears of NHP/WUC to Provinces for FY 2017-18.					
Gomal Zam NHP Arrear FY 2019 & FY 2020					
Mangla WUC					
IRSA Charges					
Total Hydel Levies					
Total - With Hydel Levies					

Unit	2016-17	2017-18	2018-19	2019-20	2020-21
	Audited	Audited	Audited	Projected	Projected
NHP - Regular	67				
Arrears of NHP/WUC to Provinces for FY 2017-18.					
Gomal Zam NHP Arrear FY 2019 & FY 2020					
Mangla WUC					
IRSA Charges					
Total Hydel Levies					
Total - With Hydel Levies					



Revenue Requirement

Renala

Unit	2016-17 Audited	2017-18 Audited	2018-19 Audited	2019-20 Projected	2020-21 Projected
(M/Rs)	12	13	16	19	21
(M/Rs)	1	0	0	0	0
(M/Rs)	2	2	2	2	2
(M/Rs)	2	3	1	2	2
(M/Rs)	(0)	(0)	(3)	(3)	(3)
(M/Rs)	17	19	17	21	23

Total Revenue Requirement w/o Rev. Gap

Regulatory Revenue Gap

FY - 2015-16 - Actual (ROI on DBD)

FY - 2016-17 - Actual

FY - 2017-18 - Actual

FY - 2018-19 - Actual

FY - 2019-20 - Provisional

Total Revenue Gap

Total Revenue Requirement with Rev. Gap

Mark up on advance NHP paid to provinces

Total Revenue Requirement of WAPDA

Mangla

Unit	2016-17 Audited	2017-18 Audited	2018-19 Audited	2019-20 Projected	2020-21 Projected
(M/Rs)	1,833	2,352	2,538	2,853	3,139
(M/Rs)	855	902	723	730	735
(M/Rs)	3,077	3,021	3,030	3,049	2,618
(M/Rs)	2,429	3,227	1,182	1,705	2,498
(M/Rs)	(32)	(89)	(88)	(88)	(88)
(M/Rs)	5,161	9,413	7,365	8,249	9,901

Total Revenue Requirement w/o Rev. Gap

Regulatory Revenue Gap

FY - 2015-16 - Actual (ROI on DBD)

FY - 2016-17 - Actual

FY - 2017-18 - Actual

FY - 2018-19 - Actual

FY - 2019-20 - Provisional

Total Revenue Gap

Total Revenue Requirement with Rev. Gap

Mark up on advance NHP paid to provinces

Total Revenue Requirement of WAPDA

Gomal Zam

Unit	2016-17 Audited	2017-18 Audited	2018-19 Audited	2019-20 Projected	2020-21 Projected
(M/Rs)	69	78	98	116	125
(M/Rs)	187	193	106	92	92
(M/Rs)	698	684	676	629	511
(M/Rs)	42	56	21	30	43
(M/Rs)	(94)	(94)	(94)	(94)	(94)
(M/Rs)	902	917	807	773	677

Total Revenue Requirement w/o Rev. Gap

Regulatory Revenue Gap

FY - 2015-16 - Actual (ROI on DBD)

FY - 2016-17 - Actual

FY - 2017-18 - Actual

FY - 2018-19 - Actual

FY - 2019-20 - Provisional

Total Revenue Gap

Total Revenue Requirement with Rev. Gap

Mark up on advance NHP paid to provinces

Total Revenue Requirement of WAPDA

Hydel Levies

NHP - Regular

Areas of NHP/WUC to Provinces for FY 2017-18.

Gomal Zam NHP Area FY 2019 & FY 2020

Mangla WUC

IRSA Charges

Total Hydel Levies

Total - With Hydel Levies

Unit	2016-17 Audited	2017-18 Audited	2018-19 Audited	2019-20 Projected	2020-21 Projected
(M/Rs)	3	-	-	-	-
(M/Rs)	0	0	0	0	0
(M/Rs)	3	3	3	3	3
(M/Rs)	(11)	(11)	(11)	(11)	(11)

Unit	2016-17 Audited	2017-18 Audited	2018-19 Audited	2019-20 Projected	2020-21 Projected
(M/Rs)	712	24	735	10,136	55
(M/Rs)	24	735	10,136	55	634

Unit	2016-17 Audited	2017-18 Audited	2018-19 Audited	2019-20 Projected	2020-21 Projected
(M/Rs)	55	80	55	634	579



Consolidated - Revenue Requirement

Unit	2016-17 Audited	2017-18 Audited	2018-19 Audited	2019-20 Projected	2020-21 Projected
Revenue Requirement (Min Rs)					
O&M	10,693	12,729	14,562	15,937	17,622
Depreciation (At Carrying Cost)	4,665	4,593	6,771	6,826	6,869
Ijara Rental	3,037	2,571	1,842	1,857	1,690
Return on Investment	23,480	22,945	28,643	32,033	28,330
Provision for Future Development	16,764	22,271	9,951	14,354	21,030
Misc. Income	(1,347)	(1,374)	(698)	(698)	(698)
Total Revenue Requirement	57,291	63,734	61,071	70,308	74,842
Regulatory Revenue Gap					
FY - 2016-17 - Actual					2,931
FY - 2017-18 - Actual					(7,942)
FY - 2018-19 - Actual					7,426
FY - 2019-20 - Provisional					(597)
Total Revenue Gap					9,005
Total Revenue Requirement with Rev. Gap					83,846
Mark up on advance NHP paid to provinces					11,024
Total Revenue Requirement of WAPDA					94,870

2016-17 Audited	2017-18 Audited	2018-19 Audited	2019-20 Projected	2020-21 Projected
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Hydel Levies

NHP - Regular	27,896
Arrears of NHP/WUC to Provinces for FY 2017-18.	-
Gomal Zam NHP Arrear FY 2019 & FY 2020	95
Mangla WUC	712
IRSA Charges	151
Total Hydel Levies	28,758
Total - With Hydel Levies	123,629

