



No. PPDCL/ 773-A / 2025

PUNJAB POWER DEVELOPMENT COMPANY LIMITED

Government of the Punjab, Energy Department

2-A Zafar Ali Road Gulberg-V, Lahore

Dated: 31 / July / 2025

The Registrar,
National Electric Power Regulatory Authority,
NEPRA Tower, Ataturk Avenue (East), G-5/1,
Islamabad

Subject: APPLICATION FOR TARIFF MODIFICATION OF 5.38 MW CHIANWALI HYDROPOWER PLANT (CHP) OF PPDCL

It is submitted that based on the reasons and grounds stated herein after, in this application is being filed with the National Electric Power Regulatory Authority (NEPRA) for the approval of modification of Reference Tariff of 5.38 MW Chianwali Hydropower Plant (CHP) of Punjab Power Development Company (PPDCL), pursuant to Section 17(3) of NEPRA Standards and Procedure Rules 1998.

2. The learned Authority is kindly requested to approve the Company's requested modified Reference Tariff, along-with the pertinent adjustments, indexations, in accordance with the grounds, parameters and assumptions mentioned above. The Petitioner would be pleased to provide any further information, clarification, or explanation that may be required by the Authority during its evaluation process.

3. Copy of PPDCL BOD's authorizing the CEO PPDCL to file tariff modification petition of Chianwali HPP, BOP cheque No. 8061391235 amounting Rs 317,806(Rs 373,889- WHT Rs 56,083) in original as tariff modification fee and affidavit has been attached.

For and on behalf of PPDCL


(Adnan Mudassar)
Chief Executive Office

REGISTRAR OFFICE
Diary No: 9177
Date: 8-8-25

DRO(S)

Forwarded please:	
☒ For nec. action	☐ For Information
☒ DG (Lic.)	☐ DG (Admin/HR)
☐ DG (M&E)	☐ DG (CAD)
☐ DG (Tech.)	☐ DG (ATC)
☐ ADG (Trf.)	☐ ADG (Fin.)
☐ SLA	☐ Dir. (I.T)
☐ Consult (Tech.)	☐ Consult (TSCM)
For kind information, please.	
1. Chairman	2. M (Tech)
3. M (Law)	4. M (Dev)

BEFORE THE NATIONAL ELECTRIC POWER REGULATORY AUTHORITY

(Modification Jurisdiction)

Punjab Power Development Company Limited (PPDCL) through Chief Executive Officer

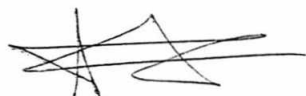
-----Petitioner

PETITION FOR MODIFICATION OF REFERENCE TARIFF OF 5.38 MW CHIANWALI HYDROPOWER PLANT (CHP) OF PUNJAB POWER DEVELOPMENT COMPANY (PPDCL), PURSUANT TO SECTION 17(3) OF NEPRA STANDARDS AND PROCEDURE RULES 1998.

Summary of Evidences

Annexures

Description	Annexure#	Pages
BOD resolution authorizing CEO to file tariff modification petition in NEPRA	1	1
Affidavit signed by CEO	2	2
Tariff modification Petition filing fee cheque	3	3
Petition for tariff modification	4	(1-8) 4+2
Actual monthly Water flows data Upper Chenab Canal (Main line lower) provided by Punjab Irrigation Department	5	13-16
Tender Design report May 2010- Estimated Monthly power & Energy	6	17
SINOTEC plant design report – Sept 2013 (Extracts) Estimated monthly power & energy	7	18-21
SINOTEC revised annual energy estimation dated 13.02.2015	8	23-31
Extracts of Power Purchase Agreement dated 24.01.2011 signed between WAPDA and NTDC/CPPA-G	9	32



(Adnan Mudassar)
Chief Executive Officer

Annexure 1



PUNJAB POWER DEVELOPMENT COMPANY LIMITED
ENERGY DEPARTMENT
GOVERNMENT OF THE PUNJAB

Board Resolution
of Punjab Power Development Company Limited

Agenda Item 3: Approval of Filing of Tariff Modification Petitions of MHP, PHP and CHP

The aforementioned agenda was presented in the 82nd Meeting of Board of Directors of Punjab Power Development Company Limited (PPDCL) held 24th April 2025 at 2:30 PM in conference Room of PPDCL, 2-A Zafar Ali Road, Gulberg-V, Lahore.

After the due deliberation and discussion, the Board unanimously:

RESOLVED to authorize the CEO to file tariff modification petitions of MHP, PHP and CHP in NEPRA based on true-up tariff (modified) along with payment of Rs. 373,889/- as modification fee for each application to the Authority


25/4/25
Company Secretary
PPDCL


Annexure 2

E-STAMP



ID : PB-LHR-92CD60C9776CE72A
Type : Low Denomination
Amount : Rs 100/-



Scan for online verification

Description : CERTIFICATE OR OTHER DOCUMENT- 19
Applicant : ADNAN MUDASSAR [35202-1294375-9]
S/O : GHULAM RASOOL TARIQ BHATTI
Agent : Muhammad Shabbir [35102-4179145-1]
Address : LAHORE
Issue Date : 18-Jul-2025 11:54:02 AM
Delisted On/Validity : 25-Jul-2025
Amount in Words : One Hundred Rupees Only
Reason : AGREEMENT BETWEEN NEPRA, Lahore (National Electric Power Regulatory Authority)
Vendor Information : Ali | PB-LHR-147 | Raja Centre Gulberg

RECEIVED FOR
PB-LHR-147, Raja Centre,
Gulberg, Lahore.

Signature: [Signature]



نوٹ: یہ ڈرائنگ تارخ اجرا سے سات دنوں تک کے لیے قابل استعمال ہے اور اسٹامپ کی تصدیق بازیروہ ویب سائٹ، کیو آر کوڈ سے کی جا سکتی ہے۔

BEFORE NATIONAL ELECTRIC POWER REGULATORY AUTHORITY,
ISLAMABAD

Application for Tariff Modification

Punjab Power Development Company Ltd (PPDCL)/ Applicant/ Petitioner

AFFIDAVIT

I Adnan Mudassar Chief Executive Officer Punjab Power Development Company Limited, do hereby solemnly affirm and declare that the contents of the above captioned Application for modification in Reference Tariff of Chianwali Hydropower Plant Distt. Gujranwala, are true and correct to the best of my knowledge and belief and nothing has been concealed therein.

[Signature]
DEPONENT

VERIFICATION

Verified on oath 18th July 2025 that the content of the Affidavit are true and correct to the best of my knowledge and belief and nothing has been concealed therein.

[Signature]
DEPONENT

Annexure 3



Payee's Account only

PLS100



Cheque No 8061391235

THE BANK OF PUNJAB
TRICON CENTER BRANCH LAHORE 73-E TRICON
CENTER MAIN JAIL ROAD

Date

18/07/2025

Pay National Electric Power Regulatory Authority

or bearer

Rupees Three Hundred Seventeen Thousand Eight Hundred Six Only

PKR 317,806/-

PK10 BPUN 6580 0397 5250 0018
PUNJAB POWER DEVELOPMENT COMPANY LT

Please do not write below this line.



Authorized Signatory

Authorized Signatory

⑈61391235⑈083006916580039752500018⑈000⑈

Annexure 4



No. PPDCL/ 773-B / 2025

PUNJAB POWER DEVELOPMENT COMPANY LIMITED

Government of the Punjab, Energy Department

2-A Zafar Ali Road Gulberg-V, Lahore

Dated: 31 / July / 2025

The Registrar,
National Electric Power Regulatory Authority,
NEPRA Tower, Ataturk Avenue (East), G-5/1,
Islamabad

Subject: APPLICATION FOR TARIFF MODIFICATION OF 5.38 MW CHIANWALI HYDROPOWER PLANT (CHP) OF PPDCL

It is submitted that based on the reasons and grounds stated hereunder, this application is being filed with the National Electric Power Regulatory Authority (NEPRA) for the approval of modification of Reference Tariff of 5.38 MW Chianwali Hydropower Plant (CHP) of Punjab Power Development Company (PPDCL), pursuant to Section 17(3) of NEPRA Standards and Procedure Rules 1998.

1. GROUNDS FOR APPLICATION FOR TARIFF MODIFICATION

- i. In its Determination dated 02.08.2016, based on annual energy benchmark of 28.532 GWh, the Authority determined Reference Tariff of Rs 11.4584/kWh for year 1-20 both for fixed charges and variable charges. For period of 21-30 years, Reference Tariff of Rs 7.3060/kWh was determined.
In its Determination dated 11.04.2022, based on annual energy benchmark of 28.532 GWh, the Authority determined Reference Tariff of Rs 10.6765/kWh for year 1-20 both for fixed charges and variable charges. For period of 21-30 years, Reference Tariff of Rs 6.5241/kWh was determined. Through this modified tariff, a reduction was made in the insurance, Return on equity, ROEDC tariff components despite the annual generation and capacity benchmark remained the same.
- ii. The Authority also determined that the power purchaser will be required to bear hydrological risk to the extent of 27.374 GWh for the year. Payment on account of hydrology risk shall be made by the power purchaser, on the basis of benchmark monthly energy generation, based on the average historical hydrology for the particular month. Thus, fixed charges of tariff components should have been determined in terms of Rs/kW/hrs instead of Rs/kWh. Based on the Reference Tariff determined in terms of Rs/kWh, the Power Purchaser (GEPCO) has agreed in the EPA that tariff will be on "Take and Pay basis" means on the basis on which, the Power Purchaser will pay to the Seller, the tariff against the delivered kWh only. The Reference Tariff and PPA terms & Conditions are thus not matching each other on this account and this is causing revenue

loss to PPDCL on account of fixed charge tariff components of O&M cost, debt servicing and Return on Equity.

- iii. In its determination dated 02.08.2016 as part of fixed charges tariff component, the Authority has determined insurance charge of Rs 1.1815/kWh with indexation of US\$/PKR. Whereas in its determination dated 11.04.2022, the Authority has determined insurance charge component 0.7001/kWh. The authority has also determined adjustment in Insurance in its determination dated 02.08.2016 Component that in case of insurance denominated in US\$, insurance cost component of tariff will be adjusted on account of US\$/PKR exchange rate variation on actual basis. Further insurance component of reference tariff will be adjusted as per actually incurred prudent costs, subject to the maximum ceiling of 1.35% of the approved EPC cost, on annual basis up on production of authentic documentary evidence by the petitioner. In its determination dated 11.04.2022 the authority has decided to decrease the insurance during operation cost of the instant project from the existing cap of 1.35% of EPC to a maximum cap of 0.8% of EPC or actual whoever is lower. Accordingly, insurance component decreases from Rs. 1.1815/kWh to Rs. 0.7001/kWh. The adjustment in reference tariff component annually on actual basis is confusing and PPDCL is not able to recover actual incurred insurance cost from the power purchaser through billing on delivered kWh basis.

2. BASIS FOR TARIFF MODIFICATION

2.1 REFERENCE TARIFF HYDROLOGY AND GENERATION

By utilized daily discharge data of 24 years (from 1980 to 2006), SINOTECH (EPC Contractor) in its plant design report of Sep, 2013, computed annual energy benchmark of 24.37 GWh with plant factor of 51.7%. The computed annual energy production was about 0.16% lower than the energy estimated at tender level. The calculation at tender level has been shown in the table below:

MONTH	FLOWS	TURBINES	POWER	ENERGY	Cum.
	(m3/s)	(no.)	(MW)	(GWh)	
Jan	4.0	0.0	0.068	0.051	0.051
Feb	38.1	1.0	1.603	1.077	1.128
Mar	55.2	1.0	2.134	1.587	2.715
Apr	53.4	1.0	2.372	1.708	4.423
May	119.5	2.0	4.216	3.137	7.560
Jun	143.4	2.0	4.725	3.402	10.962
Jul	155.0	2.0	5.008	3.726	14.688
Aug	127.6	2.0	4.673	3.477	18.165
Sep	102.0	1.0	3.582	2.579	20.744
Oct	88.7	1.0	3.017	2.245	22.989
Nov	46.8	1.0	2.021	1.455	24.444
Dec	14.4	0.0	0.290	0.215	24.659

However, SINOTECH (EPC Contractor) provided revised calculation of annual energy benchmarks through its letter dated 13.02.2015 at 28.82 GWh with a plant factor of 61%. SINOTECH in its revised calculations adopted higher volumes of water discharge as compared to originally adopted in its plant designed report. The comparison of water discharges has been shown below:

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MONTH	Original (m ³ /s)	Revised (m ³ /s)	Difference (m ³ /s)
Jan	4.00	10.98	6.98
Feb	38.10	58.27	20.17
Mar	55.20	100.46	45.26
Apr	53.40	110.60	57.20
May	119.50	124.44	4.94
Jun	143.40	120.31	(23.09)
Jul	155.00	198.76	43.76
Aug	127.60	143.29	15.69
Sep	102.00	93.91	(8.09)
Oct	88.70	80.13	(8.57)
Nov	46.80	56.50	9.70
Dec	14.40	43.89	29.49

Based on this revised calculation provided by SINOTEC, PPDCL submitted petition for determination of reference tariff. The Authority determined the following benchmarks based upon submitted petition and the same was applied to determine fixed charge tariff components in terms of Rs/kWh.

Installed Capacity (MW)	5.38
Auxiliary load	1.0%
Net capacity (MW)	5.33
Annual Capacity Factor	61.15%
Net Generation (GWh)	28.532

2.2 ACTUAL HYDROLOGY (WATER FLOWS)

The Upper Chenab Canal (Main Line Lower), on which Chianwali HPP has been constructed, offtakes from tail of Upper Chenab Canal (Main Line Upper) at RD 133+296. Two more canals offtake from the same location which are Banbanwala Ravi Bedian Depalpur (BRBD) Canal and Nokhar Branch (NB). Upper Chenab Canal (Lower) has a number of fall structures. For Chianwali HPP, the fall structure of RD 128+000, RD 139+165 and RD 164+400 has been used.

Closest to the Chianwali HPP site, the Punjab Irrigation Department has provided actual monthly water flows data at RD 131+100 of UCC from Jan 2022 to Mar 2025. The Irrigation Department has pointed out that three distributaries emanating from the Canal U/S of the power plant has sanctioned discharges as follows:

- Naushera Disty at RD 117+850 of UCC (MLL) with its discharge =479 Cusec
- Chianwali Disty at RD 121+832 of UCC (MLL) with its discharge =20 Cusic
- Feeder channel at RD 130+953 of UCC (MLL) with its discharge= 20 Cusic

Actual monthly means of water discharges for the period from Jan 2022 to Dec 2024 are substantially lower than those of adopted in tender level, EPC contractor design level and discharges adopted for calculating annual energy proposed in the tariff determination petition. This shows around 9% drop in the water flows as compared to the average historical water flows data adopted in the Tender Design Report and SINOTECH's Plant Design Report. The summary of

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actual mean monthly water flows (m3/s) for Jan 2022 to Dec 2024 provided by Punjab Irrigation Department as compared to average historical water flows has been shown in the table below:

m3/s						
Month	2022	2023	2024	3 y Avg	TD Avg	Act-TD
Jan	-	-	4.48	1.5	4.0	(2.5)
Feb	-	37.03	38.67	25.2	38.1	(12.9)
Mar	45.47	72.76	59.75	59.3	55.2	4.1
Apr	62.15	99.56	74.29	78.7	53.4	25.3
May	87.70	108.10	108.47	101.4	119.5	(18.1)
Jun	85.52	120.09	107.39	104.3	143.4	(39.1)
Jul	81.46	113.80	113.20	102.8	155.0	(52.2)
Aug	100.83	135.06	120.15	118.7	127.6	(8.9)
Sep	113.47	128.84	86.94	109.7	102.0	7.7
Oct	109.29	97.96	68.79	92.0	88.7	3.3
Nov	59.68	35.87	43.89	46.5	46.8	(0.3)
Dec	21.99	26.86	4.96	17.9	14.4	3.5
Yearly Avg				71.5	79.0	-9%

2.3 ACTUAL GENERATION

After connecting 11 KV transmission network of GEPCO, the commissioning tests of Chianwali HPP were started in 2023 and as notified by the power purchaser (GEPCO) formal COD was achieved on 21.09.2023. The energy delivered in kWh terms to GEPCO during FY 2024-25 has been shown in the table below:

Month	Year 2023 (kWh)	Year 2024 (kWh)	Year 2025 (kWh)
January	-	45,009	90,735
February	-	978,074	697,809
March	-	1,627,305	1,163,308
April	-	1,494,603	1,326,399
May	-	1,545,227	1,506,179
June	-	1,414,176	1,587,191
July	-	1,403,727	
August	-	1,433,494	
September	1,934,070	1,475,617	
October	2,512,385	1,604,039	
November	865,514	907,955	
December	755,757	-	
Total	6,067,726	13,929,226	

Financial Year	2023-24	2024-25
NEO (kWh)	13,172,120	13,196,453

2.4 FINANCIAL LOSS SUSTAINED

Owing to billing Energy on actual kWh delivered basis instead of billing based on monthly energy benchmark calculated on average historical data, PPDCL has sustained a substantial financial loss as shown in the table below:

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Financial Year	2024-25
Energy delivered (GWh)	13.196
Fixed charge rate (Rs/kWh)	9.4001
Power sale Revenue (Mln.Rs)	124.05
Less: O&M expenses (Mln.Rs)	36.48
Less: Debt Servicing cost (Mln.Rs)	118.48
Total expenses (Mln.Rs)	154.96
Revenue surplus/(short) (Mln.Rs)	(30.91)
Equity Invested (Mln.Rs)	666.00
Return on Equity (%)	-4.64%

2.5 CANAL CLOSURE DAYS

Daily water flows data provided by the Punjab Irrigation Department from Jan 2022 to Mar 2025 shows that Chianwali canal remained closed for more than one month each year as shown in the table below;

From	To	Days
27.12.2021	04.03.2022	68
25.12.2022	12.02.2023	50
27.12.2023	27.01.2024	63
26.12.2024	29.01.2025	35

The above table shows that during year 2022 to 2024 UCC remained closed for excessive days than normal. During year 2025 it remained closed for 35 days which is also much higher than the 20 days normal canal closure adopted in EPC contractor design level. Therefore, annual energy benchmark needs to be adjusted for the additional 15 days canal closure each year.

2.6 SCHEDULED AND FORCED OUTAGES DAYS OF POWER PLANTS

In the Tender design report and EPC Contractor design Report, no allowance for scheduled outage for maintenance and forced outage for unexpected events have been accounted for. But it is customary allowed to the power producers in the commercial EPA. NTDC/CPPA-G has signed Power Purchase Agreement (PPA) dated 24.01.2011 amended later from time to time, with WAPDA for its Hydel power plants. The Schedule-2 Annexure-1 of said PPA contains the table indicating the forced and scheduled outages days for each Hydel power Plant. Hydel power plants of Nandipur and Chichoki are located on UCC for which 900 hours in a year has been allowed. This comprises of 528 hours for annual maintenance, 48 hours for monthly maintenance, 224 hour for other scheduled maintenance and 100 hours for forced outages. It is therefore proposed, on the analogy of WAPDA hydel power plants, 900 hour (37.5 days) annual forced and scheduled outage may be allowed for Chianwali Hydropower Plant.

2.7 REVISED ANNUAL ENERGY BENCHMARK FOR CHIANWALI HPP

As stated above, while determining the fixed charge tariff component, Authority has calculated annual energy of 28.531 GWh at 61.15% capacity factor adopted in revised calculation provided

by SINOTECH which was much higher than the annual energy calculated at tender level and original EPC contractor design report. In the Tender design and EPC contractor reports, only 20 days has been discounted, thus 61.15% capacity factor adopted in determined Reference tariff is very unrealistic.

Actual water discharges provided by Punjab Irrigation Department for the period from Jan 2022 to Mar 2025 shows that actual water discharges are substantially lower than the water discharges adopted in the Tender design/ EPC contractor original reports. As against estimated 20 days canal closure for annual maintenance, the actual average canal closure for year 2025 are for 35 days.

In the Tender design report, no discount for forced & scheduled maintenance of Chianwali HPP has been provided, which is generally allowed for determining Reference Tariff of a power plant. In view of above, annual energy benchmark calculated by in Tender design report need to be adjusted by taking into account;

- i. 1% auxiliary consumption,
- ii. Actual average annual canal closure days of 35 days as against 20 days and
- iii. 900 hours (37.5 days) for annual forced and schedule maintenance of CHP.

After adjusting the aforesaid factors, the adjusted annual energy is worked out as 17.381 GWh as shown in the table below. It is therefore, proposed revised annual energy benchmark of 17.381 GWh may be adopted for determining revised Reference Tariff of Chianwali HPP by the Authority as against 28.531 GWh.

	Tender Design	SINOTECH Design	Revised Energy
Installed Capacity (MW)	5.380	5.380	5.380
Auxiliary Load (Consumption)	0%	0%	1%
Net Capacity (MW)	5.38	5.38	5.33
Average Annual Outages			
Low Water flows standby (days)	156.00	156.53	156.53
Annual Canal closure standby (days)	20.00	20.00	35.00
Scheduled & Forced outage (days)	-	-	37.50
Total average annual outages	176.00	176.53	229.03
Low Water flows standby capacity factor (%)	42.7%	42.9%	42.9%
Canal closure standby capacity factor(%)	5.5%	5.5%	9.6%
Scheduled & Forced outage capacity factor(%)	0.0%	0.0%	10.3%
Total average annual outages	48.2%	48.4%	62.7%
Net operating hours plant capacity factor	51.78%	51.6%	37.3%
Annual Energy Benchmark (GWh)	24.404	24.335	17.381

2.8 ANNUAL REVENUE REQUIREMENT

In its Determination dated 11.04.2022, Authority has assessed annual revenue requirement of Chianwali HPP in indexing fixed charges tariff components based on 28.531 GWh annual energy benchmark as shown below;

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Tariff Components	Yrs 1-20		Yrs 21-30		Indexation
	Rs/kWh	Mln.Rs	Rs/kWh	Mln.Rs	
Fixed Charge					
O&M- Fixed- Local	1.0230	29.19	1.0230	29.19	CPI- General
O&M- Fixed- Foreign	0.2557	7.30	0.2557	7.30	US\$/PKR & US CPI
Debt Servicing	4.1524	118.48	-	-	JPY/PKR & LIBOR
Return on ROEDC	3.0298	86.45	3.0298	86.45	NIL
Return on Equity	0.9392	26.80	0.9392	26.80	NIL
Total fixed charge	9.4001	268.20	5.2477	149.73	

2.9 ONE-TIME ADJUSTMENTS ON COD

PPDCL has submitted Application dated 19.12.2023 to the Authority for approving One-time adjustments in the Reference Tariff on COD. In the said Application, PPDCL has requested to approve actual project cost (excluding IDC) of Rs 3,659.88 million as against project cost of equal Rs 2,702.41 million assessed by the Authority in the determination of Reference Tariff of CHP. Owing to increase in actual project cost, the tariff components of debt servicing, ROE and ROEDC have been increased. The decision of the Authority is however awaited on the said application of PPDCL. The Authority is also requested to approve COD date of CHP.

3. PROPOSED TARIFF MODIFICATION

Pending approval of the Authority of One-time adjustment on COD, the PPDCL has proposed modification in the Reference Tariff based on revised annual energy benchmark of 17.381 GWh as against 28.531 GWh. Proposed revised fixed charges components in comparison of determined rates and change in rates has been shown in the table below:

Tariff Components	Yrs 1-20 (Rs/kWh)		Yrs 21-30 (Rs/kWh)		Rate Change	Indexation
	Ref.Tariff	Rev. Ref Tariff	Ref.Tariff	Rev. Ref Tariff	Rs/kWh	
Fixed Charge						(Year 1-20)
O&M- Fixed- Local	1.0230	1.6793	1.0230	1.6793	0.6563	CPI- General
O&M- Fixed- Foreign	0.2557	0.4198	0.2557	0.4198	0.1641	US\$/PKR & US CPI
Debt Servicing	4.1524	6.8165	-	-	2.6641	JPY/PKR & LIBOR
Return on ROEDC	3.0298	4.9736	3.0298	4.9736	1.9438	NIL
Return on Equity	0.9392	1.5418	0.9392	1.5418	0.6026	NIL
Total fixed charge	9.4001	15.4310	5.2477	8.6145	6.0309	
Fixed Charge Change (yrs 21-30)					3.3668	

The above revision in fixed charge tariff component has been proposed based on the annual revenue requirement already approved by the Authority in the said tariff component as shown hereunder:

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	Ref. Tariff	Rev Tariff	Change
Annual Energy benchmark (GWh)	28.532	17.381	(11.15)
Fixed Charge tariff (Rs/kWh)	9.4001	15.4310	6.0309
Revenue (Mln.Rs)	268.20	268.20	-
Less: O&M Cost (Mln.Rs)	36.48	36.48	-
Less: Debt servicing cost (Mln.Rs)	118.48	118.48	-
Total deductions	154.96	154.96	-
Revenue surplus (Mln.Rs)	113.24	113.24	-
Equity Invested (Mln.Rs)	666.00	666.00	-
Return on Equity (%)	17.0%	17.0%	-

4. PASS-THROUGH ITEMS

The Authority is also requested to approve following costs on actual basis as pass-through items:

- Insurance Component shall be Pass-Through Item as per the provision of EPA, subject to a maximum limit to be capped at 0.8% of EPC cost.
- Effective from COD, Governmental impositions such as Income Tax, Sales Tax, Excise Duty or other Duty, levy, charge, surcharge wherever and whenever payable on the sale of Electricity by the Seller to the Purchaser during the term.
- Effective from COD, income tax withheld at the prescribed rates on the payments of dividends by the Seller during the term.

5. DETERMINATION SOUGHT

The learned Authority is kindly requested to approve the Company's requested modified Reference Tariff, along-with the pertinent adjustments, indexations, in accordance with the grounds, parameters and assumptions mentioned above. The Petitioner would be pleased to provide any further information, clarification, or explanation that may be required by the Authority during its evaluation process.

Copy of PPDCL BOD's authorizing the CEO PPDCL to file tariff modification petition of Chianwali HPP, Pay order amounting Rs 373,889 (in original) as tariff modification fee and affidavit has been attached.

For and on behalf of PPDCL



(Adnan Mudassar)
Chief Executive Office



Annexure 5

**ULTIMATE DISCHARGE/WATER FLOW OF UPPER CHENAB CANAL (MLL)
RECEIVED BY CHPP EXISTING AT RD. 131+100 OF UCC
(Plant Discharge Capacity, 5380 cusec)**

January 2022 to December 2022

Date	Jan-22	Feb-22	Mar-22	Discharge in Cusec									Dec-22
				Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22		
1	-	-	-	2195	2195	3645	2605	2939	4126	4291	752	2106	
2	-	-	-	2239	2195	3593	3185	2890	4126	4236	3235	1039	
3	-	-	-	2239	2284	3593	2987	2794	4126	4181	3235	1724	
4	-	-	0	2239	2284	3593	2987	1807	4126	4181	1976	1175	
5	-	-	150	2239	2284	3593	2987	3185	4126	2699	3235	1213	
6	-	-	752	2239	2239	3541	2465	3645	4126	4072	1976	231	
7	-	-	1250	2239	2239	3541	3593	2842	4126	3910	3235	1029	
8	-	-	1502	2239	2195	3541	3387	2794	4072	3963	3235	854	
9	-	-	1642	2239	2195	3593	3438	2746	4072	3963	3135	2284	
10	-	-	1642	2239	2195	3593	3336	2699	4072	4072	2284	1365	
11	-	-	1642	2150	2195	3086	3336	2699	4126	4126	2605	819	
12	-	-	1642	2150	2195	3086	3235	3438	4126	4714	3235	0	
13	-	-	1642	2150	2195	3036	3086	3750	4126	4596	3235	854	
14	-	-	1482	2150	2195	3036	3086	3593	4126	3593	3235	786	
15	-	-	1403	2150	4126	3086	2794	4072	4126	3593	2465	786	
16	-	-	1403	2465	3960	2987	2794	4402	4126	3990	2842	854	
17	-	-	1724	2465	3960	2987	2558	4291	4126	3645	2063	854	
18	-	-	1976	2374	3960	3036	2465	4236	4126	3593	3235	854	
19	-	-	2063	2374	3960	3135	2374	4236	4072	3593	1891	854	
20	-	-	2150	2374	3960	3185	2746	4181	4291	3750	2195	854	
21	-	-	2150	2374	3960	2939	3286	4181	4181	3750	1175	854	
22	-	-	2239	2374	3856	3286	2744	4181	4181	3750	1934	1365	
23	-	-	2420	2374	3856	3086	2558	3541	4126	3750	1934	464	
24	-	-	2420	2374	3856	2939	2558	4126	4072	3750	1724	854	
25	-	-	2420	2329	3856	2939	2512	4126	4181	3750	2063	0	
26	-	-	2420	2284	3541	2842	2374	2842	4291	3593	994	Canal closure	
27	-	-	2420	2195	3593	2605	2195	3645	4181	3541	653	-	
28	-	-	2420	2195	3593	2329	2987	4126	4181	3750	204	-	
29	-	-	2329	2195	3593	2195	2890	4126	4126	3750	177	-	
30	-	-	2239	2195	3645	1976	2842	4126	4236	3750	1175	-	
31	-	-	2239	NA	3645	NA	2794	4126	NA	3750	NA	-	

There are three distributaries emanating from the canal u/s of the Power Plant:-

- Naushera Disty. at RD 117+850 of UCC (MLL) with its discharge = 479 cusec.
- Chianwali Disty. at RD 121+832 of UCC (MLL) with its discharge = 20 cusec.
- Feeder channel at RD 130+953 of UCC (MLL) with its discharge = 157 cusec.


Sub Divisional Officer
Naushera Sub Division UCC
at Gujranwala

ULTIMATE DISCHARGE/WATER FLOW OF UPPER CHENAB CANAL (MLL)
RECEIVED BY CHPP EXISTING AT RD. 131+100 OF UCC
(Plant Discharge Capacity, 5380 cusec)

January 2023 to December 2023

Discharge in Cusec

Date	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23
1	-	-	4017	3698	3698	4856	4291	4856	4914	3856	686	1891
2	-	-	3698	3698	3698	4914	4291	4798	4914	3856	686	1891
3	-	-	2014	3698	3698	4914	4236	4741	4856	3856	686	1891
4	-	-	434	3698	3698	4856	4346	4741	4856	3856	686	1891
5	-	-	994	3698	3698	4798	4402	4684	4856	3856	686	1403
6	-	-	1891	3698	3698	4798	3803	4684	4856	3490	686	1642
7	-	-	2239	3698	3698	4627	3856	4798	4856	2420	686	1403
8	-	-	1403	3698	3698	4627	3750	4701	4798	2420	686	1642
9	-	-	1365	3698	3698	4458	3694	4684	4798	2842	1065	1326
10	-	-	994	3698	3698	4346	3750	4684	4972	3856	1065	1117
11	-	0	589	3698	3698	4346	3750	4684	4972	3963	1065	1112
12	-	0	2512	3698	3698	4181	4798	4684	4798	4181	1065	786
13	-	177	2150	3698	3593	4181	4798	4684	4181	4181	1065	1065
14	-	375	2605	3135	3593	4236	4798	4684	3750	2465	1065	1326
15	-	1365	2605	3698	3490	4236	4798	4741	4684	2106	1065	1065
16	-	2150	2699	2420	3438	4346	4798	4684	4684	4017	1065	923
17	-	2465	2794	3593	3433	4291	4798	4684	4684	3750	1642	1102
18	-	3336	2652	3698	3433	4181	4741	4741	4684	3750	1891	1288
19	-	3910	2374	3698	3337	4181	4684	4741	4684	3750	1891	1029
20	-	3910	2794	3698	3336	4072	4798	4741	4856	3750	2063	1029
21	-	3910	3438	3698	3336	3910	4741	4741	4856	3750	2063	923
22	-	3490	3036	3698	3387	3910	4741	4741	4856	3750	2063	177
23	-	2987	3036	3698	3387	3750	0	4741	4856	3750	2063	177
24	-	2512	3286	3698	3387	3750	375	4741	4684	3750	2063	786
25	-	1403	2652	3698	3856	4684	3235	4741	4627	3750	2063	923
26	-	2465	3698	3698	4856	4798	3750	4798	4627	3750	2063	143
27	-	2699	3698	3698	4856	4346	3750	4972	4570	3750	1521	Canal closure
28	-	3387	3698	3698	4798	4291	3803	4972	4458	3750	1521	-
29	-	-	2890	3698	4798	4291	3803	4972	4458	3490	1326	-
30	-	-	3698	3698	4798	4291	4291	5030	4402	2842	1029	-
31	-	-	3698	NA	4798	NA	4914	4972	NA	686	NA	-

There are three distributaries emanating from the canal u/s of the Power Plant:-

- Naushera Disty. at RD 117+850 of UCC (MLL) with its discharge = 479 cusec.
- Chianwali Disty. at RD 121+832 of UCC (MLL) with its discharge = 20 cusec.
- Feeder channel at RD 130+953 of UCC (MLL) with its discharge = 157 cusec.


Sub Divisional Officer
Naushera Sub Division UCC
at Gujranwala

**ULTIMATE DISCHARGE/WATER FLOW OF UPPER CHENAB CANAL (MLL)
RECEIVED BY CHPP EXISTING AT RD. 131+100 OF UCC
(Plant Discharge Capacity, 5380 cusec)**

January 2024 to December 2024

Date	Discharge in Cusec											
	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24
1	-	1521	1521	2284	4236	3803	3963	4181	4570	2699	2284	495
2	-	1521	1065	2329	4236	3803	4017	4570	4346	2794	2284	621
3	-	1521	2284	2329	4236	3803	4017	4570	5002	2842	2106	345
4	-	1521	2284	2284	4236	3750	4017	4458	4291	2890	2106	345
5	-	1521	2284	2150	4236	3750	4017	4346	4346	2890	2063	97
6	-	1521	2284	2106	4181	3856	4017	4291	4346	2842	2063	526
7	-	1521	2284	2063	4181	3803	4072	4072	4181	2842	2195	719
8	-	1521	2106	2063	4181	3803	4116	4291	4126	3135	1934	547
9	-	1521	2106	1976	4106	3803	4072	4181	4126	3235	2284	854
10	-	1521	2106	2030	4181	3803	4017	4126	4072	2746	2284	0
11	-	1521	2150	686	4106	3750	4017	4458	4017	2652	2284	97
12	-	1521	2284	786	4106	3750	4017	4236	3698	2652	2284	0
13	-	1521	2284	786	4106	3750	4126	4126	2020	2652	2284	0
14	-	819	2106	786	3036	3698	4072	4072	1288	1250	2284	0
15	-	1403	2063	786	3036	3750	4072	4072	2020	819	1642	0
16	-	1288	2020	786	3036	3803	3336	3881	2020	2284	1849	144
17	-	1403	2020	786	3036	3803	3387	4236	2063	2284	1724	0
18	-	1403	2020	3286	3036	3803	3387	4291	2063	2284	1724	0
19	-	1683	2020	3750	3036	3803	3387	4236	2063	2284	994	0
20	-	1683	2020	3750	3036	3750	4072	4181	2020	2284	1029	231
21	-	1561	2020	3750	4017	3750	4072	4181	2063	2195	888	71
22	-	1442	2063	3750	4017	3750	4017	4236	2063	2195	1199	71
23	-	-216	2063	3750	3963	3750	3963	4181	2063	2284	1199	0
24	-	1482	2106	4236	3963	3750	4072	4072	2558	2284	786	0
25	-	1482	2239	4236	3963	3910	4072	4072	2558	2284	495	97
26	-	1482	2239	4236	3910	3750	4072	4072	2558	2284	177	Canal closure
27	-	375	2239	4236	3910	3645	4346	4126	2746	2284	177	-
28	345	1482	2284	4236	3910	3963	4126	4291	2939	2284	405	-
29	1521	621	2284	4236	3856	3910	4402	4291	2939	2284	848	-
30	1521	NA	2284	4236	3856	3963	4346	4570	2939	2284	621	-
31	1521	NA	2284	NA	3803	NA	4236	4570	NA	2284	NA	-

There are three distributaries emanating from the canal u/s of the Power Plant:-

- Naushera Disty. at RD 117+850 of UCC (MLL) with its discharge = 479 cusec.
- Chianwali Disty. at RD 121+832 of UCC (MLL) with its discharge = 20 cusec.
- Feeder channel at RD 130+953 of UCC (MLL) with its discharge = 157 cusec.


Sub Divisional Officer
Naushera Sub Division UCC
at Gujranwala

ULTIMATE DISCHARGE/WATER FLOW OF UPPER CHENAB CANAL (MLL)
RECEIVED BY CHPP EXISTING AT RD. 131+100 OF UCC
(Plant Discharge Capacity, 5380 cusec)

January 2025 to May 2025

Discharge in Cusec

Date	Jan-25	Feb-25	Mar-25	Apr-25	May-25
1	-	1602	2794	786	3750
2	-	1521	2794	786	3541
3	-	1482	2794	786	4236
4	-	1482	2794	786	4236
5	-	1642	2794	1642	231
6	-	0	1482	1891	2605
7	-	0	1765	1891	4236
8	-	316	1765	1849	4236
9	-	1849	752	1849	4969
10	-	923	752	1976	4236
11	-	621	752	2239	4236
12	-	752	752	2239	4236
13	-	123	719	2239	4236
14	-	464	719	2239	4236
15	-	150	752	2150	4236
16	-	434	752	2150	4236
17	-	0	752	2239	4072
18	-	0	786	2063	4072
19	-	0	786	1891	4017
20	-	0	97	1891	4017
21	-	0	786	2150	4017
22	-	1807	2239	3086	4017
23	-	2794	2195	3086	3963
24	-	2195	2195	3185	3910
25	-	888	2284	3185	4017
26	-	1683	1442	3286	4181
27	-	1976	3235	3645	4181
28	-	2794	3135	3645	4017
29	-	NA	1807	3593	4017
30	923	NA	786	3750	4017
31	923	NA	786	NA	1029

There are three distributaries emanating from the canal u/s of the Power Plant:-

- Naushera Disty. at RD 117+850 of UCC (MLL) with its discharge = 479 cusec
- Chianwali Disty. at RD 121+832 of UCC (MLL) with its discharge = 20 cusec
- Feeder channel at RD 130+953 of UCC (MLL) with its discharge = 157 cusec


S. In Divisional Officer
Naushera Sub Division UCC
at Gujranwala

Annexure 6

Table 3-4 Monthly Power & Energy

MONTH	FLAWS	TURBINES	POWER	ENERGY
	(m3/sec)	(no)	(MW)	(GWH)
Jan	4.0	0	0.068	0.051
Feb	38.1	1	1.603	1.077
Mar	55.2	1	2.134	1.587
Apr	53.4	1	2.372	1.708
May	119.5	2	4.216	3.137
Jun	143.4	2	4.725	3.402
Jul	155.0	2	5.008	3.726
Aug	127.6	2	4.673	3.477
Sep	102.0	1	3.582	2.579
Oct	88.7	1	3.017	2.245
Nov	46.8	1	2.021	1.455
Dec	14.4	0	0.290	0.215

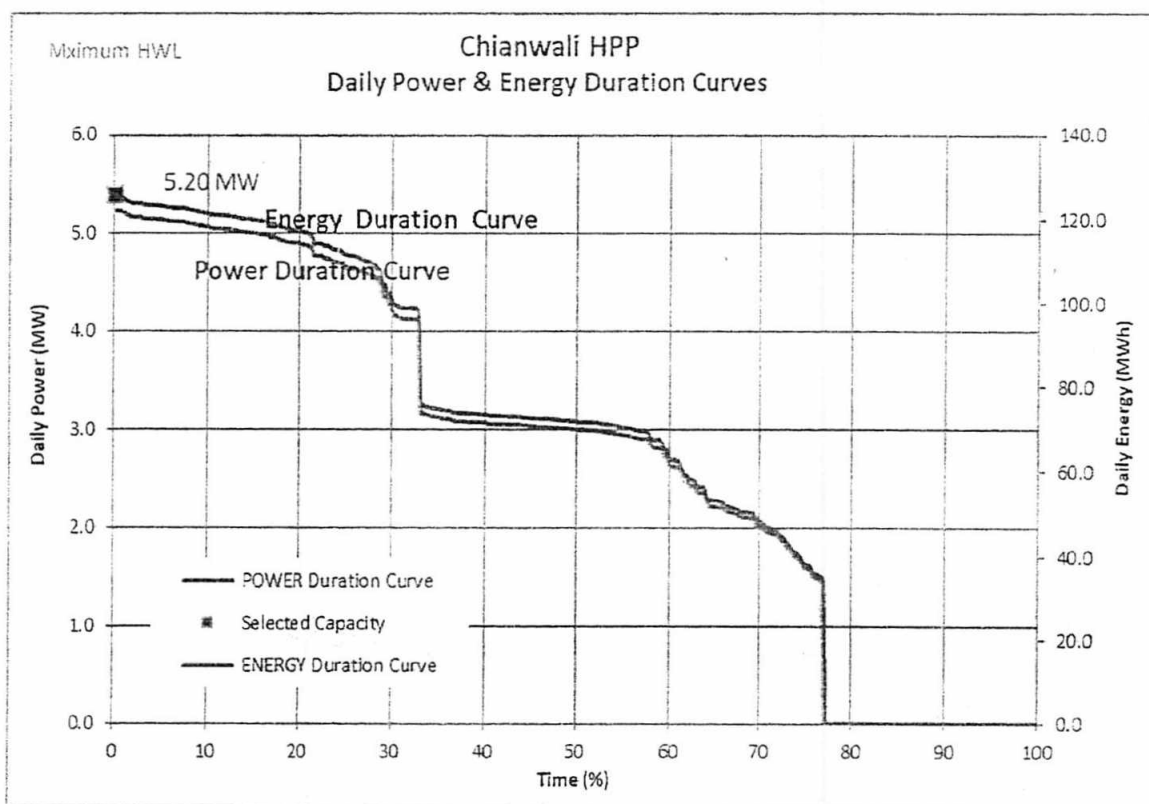


Fig-3.7: Power and Energy Duration Curve

The power duration curves for individual units are shown in shown in Fig-1 below. It can be noticed that sufficient downtime for turbine units is available for repair & maintenance purposes.

Annexure 7

Government of the Punjab



Punjab Power Management Unit
Energy Department

Procurement of Plant, Design, Supply and Install of
Chianwali Hydro Power Project
(ICB # PB-002)

DETAILED CALCULATION,
DESIGN & DRAWINGS (CIVIL)
VOLUME- I

SEPTEMBER, 2013



SINOTEC-SHPE JV

Upper Chenab Canal (Main Line Lower), on which, the project is proposed, offtakes from tail of Upper Chenab Canal (Main Line Upper) at RD 133+296. Two more canals offtake from the same location which are Banbanwala Ravi Bedian Depalpur (BRBD) Canal and Nokhar Branch (NB). These canals irrigate the districts of Sialkot, Gujranwala, Sheikhupura, Lahore, Kasur and partially Hafizabad and Okara. Upper Chenab Canal (Main Line Lower) serves as a link canal to feed water to river Ravi in addition to irrigates different areas. The canals off-taking from Balloki barrage mainly rely on supplies of MR Link and UCC.

Upper Chenab Canal (Lower) has a number of fall structures. For the proposed hydropower station, the fall structures of RD 128+000, RD 139+165 and RD 164+400 will be used. The canal is perennial and remains closed normally from December 26 to January 15 for annual maintenance purposes.

It is planned to combine these three falls and construct a low head powerhouse on the canal in bypass arrangement at some suitable location. According to the approved longitudinal section of Upper Chanab Canal, the designed discharge d/s of fall RD 128+000 is 271 cumec (9569 cusec). The u/s water level at fall RD 128+000 is 223.848 meter a.m.s.l. and d/s water level is 222.260 meter a.m.s.l. Thus 1.588 m of fall is available at the location of 1st fall. At 2nd fall RD 139+165, the u/s water level is 221.733 meter a.m.s.l and d/s water level is 221.751 meter a.m.s.l. Thus 0.018 m of fall is available at the 2nd location. At 3rd fall RD 164+400, the u/s water level is 220.581 meter a.m.s.l and d/s water level is 218.935 meter a.m.s.l. Thus 1.646 m of fall is available at the 3rd location. When combined, this will give a total fall of 3.252 m which will be utilized for power production.

Three (03) types of efficiencies are involved in the above formula which are as followings:

$$\eta(\text{total}) = \eta(\text{turbine}) \times \eta(\text{generator}) \times \eta(\text{gearbox})$$

$$\text{Annual Energy generation (GWh)} = P \times (\text{No. of operating hours in year}) / 1000$$

The turbine efficiencies under different scenarios of discharge availability for power have also been computed while the generator and gearbox efficiencies are taken as fixed i.e. 97% and 98.0% respectively.

4.2.1 Computation of Power Potential & Annual Energy

As already explained, the daily discharges of historical period from 1980 to 2006 (daily discharge data for 1982, 1988 & 1989 is missing) have been utilized as the available inflows of the powerhouse for different computations of head across, power potential and annual energy production. In accordance with Bidding document, the design discharge selected as 150 cumec, and the installed capacity selected as 5.38 MW. Power potential is computed at different discharges ranging from 22.5 cumec (minimum discharge of 1 turbine) to 150 cumec.

By utilized historical daily discharges data of 24 years, the average annual energy production has been computed as 24.37 GWh with the plant factor of 51.7%, which is about 0.16% lower than the energy estimated at tender level. The annual energy production of historical period from 1980 to 2006 (1982, 1988 & 1989 is missing) is shown in the following Table 4:

Table 4 Annual energy production of period 1980 - 1981, 1983 - 1988, 1991 - 2006

Year	Annual energy (GWh)	Year	Annual energy (GWh)	Year	Annual energy (GWh)
1980	23.52	1991	33.98	1999	27.09
1981	18.79	1992	36.06	2000	27.98
1983	17.74	1993	33.96	2001	24.72
1984	6.09	1994	32.76	2002	24.71
1985	8.13	1995	35.85	2003	26.26
1986	23.00	1996	30.81	2004	16.09
1987	9.46	1997	33.48	2005	20.70
1988	11.34	1998	33.21	2006	29.15
Average annual energy : 24.37 GWh					

Energy computations corresponding to design discharge of 150 cumec with historical daily discharges have been attached as Annex G.

Annexure 8



SINOTEC CO., LTD

Attachment #
1.1.

Our Ref: SINOTEC/CHP/ 67
Dated: February 13, 2015

The Project Director / Project Manager
Punjab Power Management Unit (PPMU)
Energy Department
Lahore

SUBJECT: PROCUREMENT OF PLANT, DESIGN, SUPPLY AND INSTALL OF
CHIANWALI HYDROPOWER PROJECT (CHP) -- ICB-PB-002
--- Energy Calculations

References:

- i. Our Letter No. SINOTEC/CHP/125 dated September 13, 2013;
- ii. Director Technical, PPMU Letter No. DT-PPMU/21/2015 dated January 29, 2015;
- iii. Our Letter No. SINOTEC/CHP/46 dated February 03, 2015.

Dear Sir,

In continuation to our letter referred above at serial No. (iii), we want to further explain that following sources of discharges data have been used in our calculations:

- Daily discharges data collected from the gauge registers of the respective Canal Division;
- Daily discharges data given in Feasibility Study of Chianwali HPP.

In our submissions "Detailed Calculation, Design & Drawings (Civil)" vide letter referred above at (i), annual energies were computed from 1980 to 2006 for each year and average annual energy was computed by averaging these annual energies as 24.37 GWh.

It was discussed in depth jointly with PPMU and Consultants and decided that as for other REDSIP projects (MHP, PHP, DHP), energies have been computed using average daily flows so same approach should be adopted for the CHP. In light of the joint decision and fact that most of the flow data of UCC at RD 128+000 is missing, as an alternate approach, average annual energy has been calculated by using average daily flows from 1980 to 2006 as **28.82 GWh** with plant factor of 61%.

It is requested that energy & plant factor mentioned in our earlier submission should be substituted with the current submission. This is for your information please.

Thanking and assuring you of our best services and cooperation.

Best Regards,

For SINOTEC-SHPE JV

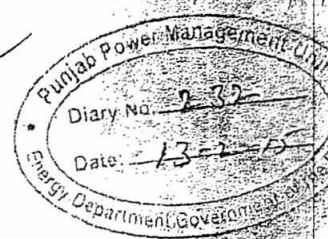
M. Masih-uddin 02/15
(Mian Muhammad Masih-ud-Din)
Principal Engineer

[Signature]
Project Director (PPMU)

[Signature]
Dir (T)

[Signature]
13/2/15

for ma
1- Dir (T) (H)



C.C. Team Leader, Punjab Hydropower Consultants, 13-L Model Town Extension, Lahore.



SINOTEC

SINOTEC CO., LTD

Our Ref: SINOTEC/CHP/ 46
Dated: February 03, 2015

The Project Director / Project Manager
Punjab Power Management Unit (PPMU)
Energy Department
Lahore

SUBJECT: PROCUREMENT OF PLANT, DESIGN, SUPPLY AND INSTALL OF
CHIANWALI HYDROPOWER PROJECT (CHP) -- ICB-PB-002
--- Energy Calculations

Reference: Director Technical, PPMU Letter No. DT-PPMU/21/2015 dated January 29, 2015

Dear Sir,

In apropos to the letter referred above, please find attached the "Annual Energy Calculations" using average daily flows. This is for your information please.

Thanking and assuring you of our best services and cooperation.

Best Regards,

For SINOTEC-SHPE JV

M. Masih-ddin 02
03/15

(Mian Muhammad Masih-ud-Din)
Principal Engineer

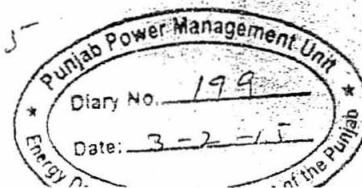
Encl: Annual Energy Output

C.C. Team Leader, Punjab Hydropower Consultants, 13-L Model Town Extension, Lahore.

Dir. (Tariff)
R. Spoke to Dir. (Tariff) and Amman
the Tariff portion accordingly
Dir. (Tariff) affixing
Dir. (I) advice for
consultants.
3/2/2015

g

PD/83/15
6/2/15



Year	Ave(1980-1981, 1983-1988, 1991-2006)				Annual Energy Output		26.82	GWh							
Date	Days	Inflows	Power Flows	Spills	HWL	TWL	Gross Head	Head Loss	Net Head	Turbine Flows		Power		Total	Energy (MWh)
	(1 year)	(m ³ /s)	(m ³ /s)	(m ³ /s)	(masl)	(masl)	(m)	(m)	(m)	Unit-1	Unit-2	Unit-1	Unit-2		
1-Jan	1	9.0	9.0	0.0	223.69	217.59	6.10	0.04	6.05	9.0	0.0	0	0	0	0.000
2-Jan	2	8.8	8.8	0.0	223.69	217.59	6.10	0.04	6.06	8.8	0.0	0	0	0	0.000
3-Jan	3	8.8	8.8	0.0	223.69	217.59	6.10	0.04	6.06	8.8	0.0	0	0	0	0.000
4-Jan	4	9.0	9.0	0.0	223.69	217.60	6.09	0.04	6.05	9.0	0.0	0	0	0	0.000
5-Jan	5	8.9	8.9	0.0	223.69	217.59	6.10	0.04	6.06	8.9	0.0	0	0	0	0.000
6-Jan	6	8.9	8.9	0.0	223.69	217.59	6.10	0.04	6.06	8.9	0.0	0	0	0	0.000
7-Jan	7	8.4	8.4	0.0	223.69	217.57	6.12	0.04	6.08	8.4	0.0	0	0	0	0.000
8-Jan	8	8.7	8.7	0.0	223.69	217.58	6.11	0.04	6.07	8.7	0.0	0	0	0	0.000
9-Jan	9	8.8	8.8	0.0	223.69	217.59	6.10	0.04	6.06	8.8	0.0	0	0	0	0.000
10-Jan	10	8.8	8.8	0.0	223.69	217.59	6.10	0.04	6.06	8.8	0.0	0	0	0	0.000
11-Jan	11	8.8	8.8	0.0	223.69	217.59	6.10	0.04	6.06	8.8	0.0	0	0	0	0.000
12-Jan	12	8.9	8.9	0.0	223.69	217.59	6.10	0.04	6.06	8.9	0.0	0	0	0	0.000
13-Jan	13	8.8	8.8	0.0	223.69	217.59	6.10	0.04	6.06	8.8	0.0	0	0	0	0.000
14-Jan	14	8.0	8.0	0.0	223.69	217.56	6.13	0.04	6.09	8.0	0.0	0	0	0	0.000
15-Jan	15	12.7	12.7	0.0	223.69	217.71	5.98	0.06	5.92	12.7	0.0	0	0	0	0.000
16-Jan	16	12.9	12.9	0.0	223.69	217.72	5.97	0.06	5.92	12.9	0.0	0	0	0	0.000
17-Jan	17	12.6	12.6	0.0	223.69	217.71	5.98	0.06	5.93	12.6	0.0	0	0	0	0.000
18-Jan	18	15.3	15.3	0.0	223.69	217.79	5.90	0.07	5.83	15.3	0.0	0	0	0	0.000
19-Jan	19	19.8	19.8	0.0	223.69	217.93	5.76	0.09	5.67	19.8	0.0	0	0	0	0.000
20-Jan	20	19.3	19.3	0.0	223.69	217.92	5.77	0.09	5.69	19.3	0.0	0	0	0	0.000
21-Jan	21	12.4	12.4	0.0	223.69	217.70	5.99	0.06	5.93	12.4	0.0	0	0	0	0.000
22-Jan	22	13.5	13.5	0.0	223.69	217.74	5.95	0.06	5.89	13.5	0.0	0	0	0	0.000
23-Jan	23	13.7	13.7	0.0	223.69	217.74	5.95	0.06	5.89	13.7	0.0	0	0	0	0.000
24-Jan	24	14.9	14.9	0.0	223.69	217.78	5.91	0.07	5.84	14.9	0.0	0	0	0	0.000
25-Jan	25	16.7	16.7	0.0	223.69	217.84	5.85	0.07	5.78	16.7	0.0	0	0	0	0.000
26-Jan	26	16.2	16.2	0.0	223.69	217.82	5.87	0.07	5.80	16.2	0.0	0	0	0	0.000
27-Jan	27	4.3	4.3	0.0	223.69	217.44	6.25	0.02	6.23	4.3	0.0	0	0	0	0.000
28-Jan	28	4.4	4.4	0.0	223.69	217.45	6.24	0.02	6.22	4.4	0.0	0	0	0	0.000
29-Jan	29	4.6	4.6	0.0	223.69	217.45	6.24	0.02	6.22	4.6	0.0	0	0	0	0.000
30-Jan	30	12.2	12.2	0.0	223.69	217.69	6.00	0.05	5.94	12.2	0.0	0	0	0	0.000
31-Jan	31	12.3	12.3	0.0	223.69	217.70	5.99	0.05	5.94	12.3	0.0	0	0	0	0.000
1-Feb	32	35.6	35.6	0.0	223.69	218.20	5.49	0.11	5.38	35.6	0.0	1617	0	1617	38.798
2-Feb	33	36.9	36.9	0.0	223.69	218.22	5.47	0.11	5.36	36.9	0.0	1676	0	1676	40.230
3-Feb	34	39.2	39.2	0.0	223.69	218.26	5.43	0.11	5.33	39.2	0.0	1787	0	1787	42.879
4-Feb	35	41.7	41.7	0.0	223.69	218.29	5.40	0.11	5.29	41.7	0.0	1895	0	1895	45.473
5-Feb	36	44.8	44.8	0.0	223.69	218.33	5.38	0.11	5.24	44.8	0.0	2020	0	2020	48.487
6-Feb	37	49.1	49.1	0.0	223.69	218.40	5.29	0.12	5.18	49.1	0.0	2192	0	2192	52.600
7-Feb	38	47.2	47.2	0.0	223.69	218.37	5.32	0.11	5.21	47.2	0.0	2116	0	2116	50.781
8-Feb	39	46.1	46.1	0.0	223.69	218.35	5.34	0.11	5.22	46.1	0.0	2074	0	2074	49.772
9-Feb	40	48.8	48.8	0.0	223.69	218.39	5.30	0.12	5.18	48.8	0.0	2181	0	2181	52.337
10-Feb	41	50.6	50.6	0.0	223.69	218.42	5.27	0.12	5.16	50.6	0.0	2251	0	2251	54.034
11-Feb	42	41.5	41.5	0.0	223.69	218.29	5.40	0.11	5.29	41.5	0.0	1888	0	1888	45.304
12-Feb	43	40.7	40.7	0.0	223.69	218.28	5.41	0.11	5.30	40.7	0.0	1854	0	1854	44.484
13-Feb	44	55.1	55.1	0.0	223.69	218.48	5.21	0.12	5.09	55.1	0.0	2421	0	2421	58.108

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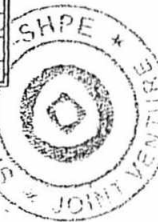
Energy Computations-1



Date	Days	Inflows	Power Flows	Spills	HWL	TWL	Gross Head	Head Loss	Net Head	Turbine Flows		Power			Energy
	(1 year)	(m³/s)	(m³/s)	(m³/s)	(masl)	(masl)	(m)	(m)	(m)	Unit-1	Unit-2	Unit-1	Unit 2	Total	(MWh)
14-Feb	45	54.2	54.2	0.0	223.69	218.47	5.22	0.12	5.11	54.2	0.0	2386	0	2386	57.268
15-Feb	46	56.7	56.7	0.0	223.69	218.50	5.19	0.12	5.07	56.7	0.0	2479	0	2479	59.493
16-Feb	47	58.7	58.7	0.0	223.69	218.53	5.16	0.12	5.04	58.7	0.0	2550	0	2550	61.191
17-Feb	48	66.7	66.7	0.0	223.69	218.64	5.05	0.13	4.92	66.7	0.0	2821	0	2821	67.700
18-Feb	49	68.0	68.0	0.0	223.69	218.66	5.03	0.13	4.90	68.0	0.0	2863	0	2863	68.710
19-Feb	50	68.2	68.2	0.0	223.69	218.66	5.03	0.13	4.90	68.2	0.0	2870	0	2870	68.875
20-Feb	51	66.4	66.4	0.0	223.69	218.64	5.05	0.13	4.93	66.4	0.0	2810	0	2810	67.432
21-Feb	52	66.1	66.1	0.0	223.69	218.63	5.06	0.12	4.93	66.1	0.0	2801	0	2801	67.232
22-Feb	53	72.0	72.0	0.0	223.69	218.72	4.97	0.13	4.84	72.0	0.0	2987	0	2987	71.697
23-Feb	54	67.5	67.5	0.0	223.69	218.65	5.04	0.13	4.91	67.5	0.0	2846	0	2846	68.301
24-Feb	55	89.3	89.3	0.0	223.69	218.90	4.79	0.14	4.65	52.5	36.8	2104	1451	3555	85.318
25-Feb	56	89.8	89.8	0.0	223.69	218.91	4.78	0.14	4.64	52.5	37.3	2102	1470	3572	85.729
26-Feb	57	89.0	89.0	0.0	223.69	218.90	4.79	0.14	4.65	52.5	36.5	2106	1437	3543	85.033
27-Feb	58	72.8	72.8	0.0	223.69	218.73	4.96	0.13	4.83	72.8	0.0	3011	0	3011	72.264
28-Feb	59	68.8	68.8	0.0	223.69	218.67	5.02	0.13	4.89	68.8	0.0	2886	0	2886	69.266
1-Mar	60	93.0	93.0	0.0	223.69	218.94	4.75	0.14	4.61	52.5	40.5	2086	1603	3689	88.539
2-Mar	61	93.4	93.4	0.0	223.69	218.95	4.74	0.14	4.60	52.5	40.9	2085	1617	3702	88.845
3-Mar	62	97.1	97.1	0.0	223.69	218.98	4.71	0.14	4.56	52.5	44.6	2067	1750	3817	91.597
4-Mar	63	84.3	84.3	0.0	223.69	218.85	4.84	0.14	4.70	52.5	31.8	2129	1241	3370	80.883
5-Mar	64	89.0	89.0	0.0	223.69	218.90	4.79	0.14	4.65	52.5	36.5	2106	1438	3544	85.058
6-Mar	65	80.9	80.9	0.0	223.69	218.82	4.87	0.13	4.74	52.5	28.4	2145	1104	3249	77.983
7-Mar	66	79.4	79.4	0.0	223.69	218.80	4.89	0.13	4.75	52.5	26.9	2152	1042	3194	76.661
8-Mar	67	90.9	90.9	0.0	223.69	218.92	4.77	0.14	4.63	52.5	38.4	2096	1519	3616	86.776
9-Mar	68	98.5	98.5	0.0	223.69	219.00	4.69	0.14	4.55	75.0	23.5	2916	857	3773	90.553
10-Mar	69	104.4	104.4	0.0	223.69	219.06	4.63	0.15	4.49	75.0	29.4	2876	1087	3963	95.094
11-Mar	70	99.9	99.9	0.0	223.69	219.01	4.68	0.14	4.53	75.0	24.9	2907	912	3818	91.639
12-Mar	71	95.7	95.7	0.0	223.69	218.97	4.72	0.14	4.58	52.5	43.2	2073	1701	3774	90.583
13-Mar	72	99.5	99.5	0.0	223.69	219.01	4.68	0.14	4.54	75.0	24.5	2910	894	3804	91.296
14-Mar	73	113.1	113.1	0.0	223.69	219.15	4.54	0.15	4.39	75.0	38.1	2816	1425	4242	101.805
15-Mar	74	109.8	109.8	0.0	223.69	219.11	4.58	0.15	4.43	75.0	34.8	2839	1298	4137	99.282
16-Mar	75	113.5	113.5	0.0	223.69	219.15	4.54	0.15	4.39	75.0	38.5	2814	1441	4255	102.117
17-Mar	76	100.7	100.7	0.0	223.69	219.02	4.67	0.14	4.52	75.0	25.7	2901	943	3844	92.261
18-Mar	77	108.3	108.3	0.0	223.69	219.10	4.59	0.15	4.44	75.0	33.3	2849	1237	4086	98.067
19-Mar	78	113.5	113.5	0.0	223.69	219.15	4.54	0.15	4.39	75.0	38.5	2813	1442	4256	102.138
20-Mar	79	113.5	113.5	0.0	223.69	219.15	4.54	0.15	4.39	75.0	38.5	2813	1444	4257	102.178
21-Mar	80	106.5	106.5	0.0	223.69	219.08	4.61	0.15	4.46	75.0	31.5	2861	1168	4030	96.715
22-Mar	81	109.9	109.9	0.0	223.69	219.11	4.58	0.15	4.43	75.0	34.9	2838	1300	4138	99.312
23-Mar	82	109.3	109.3	0.0	223.69	219.11	4.58	0.15	4.43	75.0	34.3	2842	1278	4120	98.879
24-Mar	83	115.4	115.4	0.0	223.69	219.17	4.52	0.15	4.37	75.0	40.4	2800	1517	4317	103.608
25-Mar	84	112.1	112.1	0.0	223.69	219.14	4.55	0.15	4.40	75.0	37.1	2823	1389	4212	101.080
26-Mar	85	112.4	112.4	0.0	223.69	219.14	4.55	0.15	4.40	75.0	37.4	2821	1398	4219	101.265
27-Mar	86	90.0	90.0	0.0	223.69	218.91	4.78	0.14	4.64	52.5	37.5	2101	1481	3581	85.955
28-Mar	87	97.0	97.0	0.0	223.69	218.98	4.71	0.14	4.56	52.5	44.5	2067	1746	3814	91.526
29-Mar	88	89.2	89.2	0.0	223.69	218.90	4.79	0.14	4.65	52.5	36.7	2105	1446	3550	85.212
30-Mar	89	90.7	90.7	0.0	223.69	218.92	4.77	0.14	4.63	52.5	38.2	2098	1509	3606	86.552
31-Mar	90	103.4	103.4	0.0	223.69	219.05	4.64	0.15	4.50	75.0	28.4	2883	1046	3929	94.289

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Date	Days	Inflows	Power Flows	Spills	HWL	TWL	Gross Head	Head Loss	Net Head	Turbine Flows		Power			Energy
	(1 year)	(m³/s)	(m³/s)	(m³/s)	(masl)	(masl)	(m)	(m)	(m)	Unit-1	Unit-2	Unit-1	Unit-2	Total	(MWh)
1-Apr	91	97.1	97.1	0.0	223.69	218.98	4.71	0.14	4.56	52.5	44.6	2066	1752	3818	91.638
2-Apr	92	104.8	104.8	0.0	223.69	219.06	4.63	0.15	4.48	75.0	29.8	2873	1101	3974	95.384
3-Apr	93	108.4	108.4	0.0	223.69	219.10	4.59	0.15	4.44	75.0	33.4	2848	1242	4091	98.175
4-Apr	94	107.8	107.8	0.0	223.69	219.09	4.60	0.15	4.45	75.0	32.8	2852	1220	4072	97.727
5-Apr	95	108.7	108.7	0.0	223.69	219.10	4.59	0.15	4.44	75.0	33.7	2846	1255	4101	98.431
6-Apr	96	110.2	110.2	0.0	223.69	219.12	4.57	0.15	4.42	75.0	35.2	2836	1312	4148	99.551
7-Apr	97	109.0	109.0	0.0	223.69	219.10	4.59	0.15	4.44	75.0	34.0	2844	1267	4111	98.655
8-Apr	98	108.1	108.1	0.0	223.69	219.10	4.59	0.15	4.45	75.0	33.1	2851	1230	4081	97.933
9-Apr	99	102.2	102.2	0.0	223.69	219.04	4.65	0.15	4.51	75.0	27.2	2891	999	3890	93.355
10-Apr	100	106.3	106.3	0.0	223.69	219.08	4.61	0.15	4.46	75.0	31.3	2863	1161	4023	96.558
11-Apr	101	99.4	99.4	0.0	223.69	219.01	4.68	0.14	4.54	75.0	24.4	2910	891	3801	91.230
12-Apr	102	100.5	100.5	0.0	223.69	219.02	4.67	0.14	4.53	75.0	25.5	2903	934	3837	92.077
13-Apr	103	106.7	106.7	0.0	223.69	219.08	4.61	0.15	4.46	75.0	31.7	2860	1175	4035	96.844
14-Apr	104	91.8	91.8	0.0	223.69	218.93	4.76	0.14	4.62	52.5	39.3	2092	1557	3649	87.582
15-Apr	105	93.8	93.8	0.0	223.69	218.95	4.74	0.14	4.60	52.5	41.3	2083	1632	3714	89.140
16-Apr	106	98.3	98.3	0.0	223.69	219.00	4.69	0.14	4.55	75.0	23.3	2918	848	3766	90.390
17-Apr	107	108.2	108.2	0.0	223.69	219.10	4.59	0.15	4.44	75.0	33.2	2850	1235	4084	98.025
18-Apr	108	115.9	115.9	0.0	223.69	219.17	4.52	0.15	4.36	75.0	40.9	2797	1534	4331	103.948
19-Apr	109	116.5	116.5	0.0	223.69	219.18	4.51	0.15	4.36	75.0	41.5	2793	1552	4345	104.287
20-Apr	110	115.0	115.0	0.0	223.69	219.17	4.52	0.15	4.37	75.0	40.0	2803	1502	4305	103.329
21-Apr	111	130.0	130.0	0.0	223.69	219.32	4.37	0.16	4.21	75.0	55.0	2700	2000	4700	112.805
22-Apr	112	136.1	136.1	0.0	223.69	219.38	4.31	0.16	4.15	75.0	61.1	2658	2183	4841	116.181
23-Apr	113	122.8	122.8	0.0	223.69	219.24	4.45	0.16	4.29	75.0	47.8	2750	1765	4515	108.349
24-Apr	114	120.2	120.2	0.0	223.69	219.22	4.47	0.16	4.32	75.0	45.2	2767	1679	4446	106.706
25-Apr	115	121.3	121.3	0.0	223.69	219.23	4.46	0.16	4.30	75.0	46.3	2760	1715	4475	107.403
26-Apr	116	124.4	124.4	0.0	223.69	219.26	4.43	0.16	4.27	75.0	49.4	2738	1819	4557	109.376
27-Apr	117	118.1	118.1	0.0	223.69	219.20	4.49	0.15	4.34	75.0	43.1	2782	1607	4389	105.344
28-Apr	118	110.7	110.7	0.0	223.69	219.12	4.57	0.15	4.42	75.0	35.7	2833	1331	4164	99.930
29-Apr	119	122.1	122.1	0.0	223.69	219.24	4.45	0.16	4.30	75.0	47.1	2754	1742	4497	107.918
30-Apr	120	103.8	103.8	0.0	223.69	219.05	4.64	0.15	4.49	75.0	28.8	2880	1061	3941	94.584
1-May	121	112.6	112.6	0.0	223.69	219.14	4.55	0.15	4.40	75.0	37.6	2819	1408	4228	101.467
2-May	122	111.1	111.1	0.0	223.69	219.13	4.56	0.15	4.41	75.0	36.1	2830	1347	4177	100.255
3-May	123	112.0	112.0	0.0	223.69	219.14	4.55	0.15	4.40	75.0	37.0	2824	1384	4208	100.981
4-May	124	114.9	114.9	0.0	223.69	219.16	4.53	0.15	4.37	75.0	39.9	2804	1498	4302	103.241
5-May	125	115.0	115.0	0.0	223.69	219.16	4.53	0.15	4.37	75.0	40.0	2803	1501	4304	103.303
6-May	126	116.2	116.2	0.0	223.69	219.18	4.51	0.15	4.36	75.0	41.2	2795	1543	4338	104.113
7-May	127	110.1	110.1	0.0	223.69	219.12	4.57	0.15	4.42	75.0	35.1	2837	1309	4145	99.490
8-May	128	116.6	116.6	0.0	223.69	219.18	4.51	0.15	4.35	75.0	41.6	2792	1558	4350	104.406
9-May	129	113.5	113.5	0.0	223.69	219.15	4.54	0.15	4.39	75.0	38.5	2813	1444	4257	102.176
10-May	130	106.6	106.6	0.0	223.69	219.08	4.61	0.15	4.46	75.0	31.6	2861	1172	4033	96.785
11-May	131	111.1	111.1	0.0	223.69	219.13	4.56	0.15	4.41	75.0	36.1	2830	1347	4177	100.246
12-May	132	111.4	111.4	0.0	223.69	219.13	4.56	0.15	4.41	75.0	36.4	2828	1360	4188	100.509
13-May	133	116.4	116.4	0.0	223.69	219.18	4.51	0.15	4.36	75.0	41.4	2794	1549	4343	104.233
14-May	134	111.3	111.3	0.0	223.69	219.13	4.56	0.15	4.41	75.0	36.3	2829	1355	4183	100.403
15-May	135	112.7	112.7	0.0	223.69	219.14	4.55	0.15	4.40	75.0	37.7	2819	1412	4231	101.542
16-May	136	111.5	111.5	0.0	223.69	219.13	4.56	0.15	4.41	75.0	36.5	2827	1364	4191	100.577

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HPPE *
JOINT VENTURE

Date	Days	Inflows	Power Flows	Spills	HWL	TWL	Gross Head	Head Loss	Net Head	Turbine Flows		Power		Energy
	(1 year)	(m³/s)	(m³/s)	(m³/s)	(masl)	(masl)	(m)	(m)	(m)	Unit-1	Unit-2	Unit-1	Unit-2	(MWh)
17-May	137	119.4	119.4	0.0	223.69	219.21	4.48	0.16	4.32	75.0	44.4	2773	1653	106.224
18-May	138	128.0	128.0	0.0	223.69	219.30	4.39	0.16	4.23	75.0	53.0	2714	1934	111.555
19-May	139	149.7	149.7	0.0	223.69	219.52	4.17	0.17	4.00	75.0	74.7	2565	2556	122.896
20-May	140	150.9	150.0	0.9	223.69	219.53	4.16	0.17	3.99	75.0	75.0	2560	2560	122.873
21-May	141	153.5	150.0	3.5	223.69	219.55	4.14	0.17	3.97	75.0	75.0	2546	2546	122.226
22-May	142	152.3	150.0	2.3	223.69	219.54	4.15	0.17	3.98	75.0	75.0	2553	2553	122.530
23-May	143	151.1	150.0	1.1	223.69	219.53	4.16	0.17	3.99	75.0	75.0	2559	2559	122.834
24-May	144	149.8	149.8	0.0	223.69	219.52	4.17	0.17	4.00	75.0	74.8	2565	2557	122.909
25-May	145	146.0	146.0	0.0	223.69	219.48	4.21	0.17	4.04	75.0	71.0	2590	2459	121.176
26-May	146	140.4	140.4	0.0	223.69	219.42	4.27	0.17	4.10	75.0	65.4	2629	2306	118.428
27-May	147	123.0	123.0	0.0	223.69	219.25	4.44	0.16	4.29	75.0	48.0	2748	1772	108.491
28-May	148	131.2	131.2	0.0	223.69	219.33	4.36	0.16	4.20	75.0	56.2	2692	2037	113.490
29-May	149	125.7	125.7	0.0	223.69	219.27	4.42	0.16	4.26	75.0	50.7	2730	1861	110.167
30-May	150	125.2	125.2	0.0	223.69	219.27	4.42	0.16	4.26	75.0	50.2	2733	1845	109.866
31-May	151	116.3	116.3	0.0	223.69	219.18	4.51	0.15	4.36	75.0	41.3	2794	1546	104.173
1-Jun	152	118.5	118.5	0.0	223.69	219.20	4.49	0.15	4.33	75.0	43.5	2779	1620	105.592
2-Jun	153	123.3	123.3	0.0	223.69	219.25	4.44	0.16	4.28	75.0	48.3	2746	1781	108.657
3-Jun	154	121.7	121.7	0.0	223.69	219.23	4.46	0.16	4.30	75.0	46.7	2757	1727	107.634
4-Jun	155	120.0	120.0	0.0	223.69	219.22	4.47	0.16	4.32	75.0	45.0	2769	1671	106.564
5-Jun	156	122.4	122.4	0.0	223.69	219.24	4.45	0.16	4.29	75.0	47.4	2753	1751	108.082
6-Jun	157	121.7	121.7	0.0	223.69	219.23	4.46	0.16	4.30	75.0	46.7	2757	1729	107.673
7-Jun	158	113.7	113.7	0.0	223.69	219.15	4.54	0.15	4.39	75.0	38.7	2812	1451	102.311
8-Jun	159	116.5	116.5	0.0	223.69	219.18	4.51	0.15	4.36	75.0	41.5	2793	1552	104.285
9-Jun	160	117.4	117.4	0.0	223.69	219.19	4.50	0.15	4.35	75.0	42.4	2787	1583	104.881
10-Jun	161	113.8	113.8	0.0	223.69	219.15	4.54	0.15	4.38	75.0	38.8	2811	1455	102.396
11-Jun	162	121.5	121.5	0.0	223.69	219.23	4.46	0.16	4.30	75.0	46.5	2758	1723	107.549
12-Jun	163	114.2	114.2	0.0	223.69	219.16	4.53	0.15	4.38	75.0	39.2	2808	1471	102.716
13-Jun	164	112.6	112.6	0.0	223.69	219.14	4.55	0.15	4.40	75.0	37.6	2820	1406	101.428
14-Jun	165	113.2	113.2	0.0	223.69	219.15	4.54	0.15	4.39	75.0	38.2	2816	1429	101.880
15-Jun	166	116.2	116.2	0.0	223.69	219.18	4.51	0.15	4.36	75.0	41.2	2795	1542	104.096
16-Jun	167	125.1	125.1	0.0	223.69	219.27	4.42	0.16	4.26	75.0	50.1	2734	1841	109.798
17-Jun	168	122.0	122.0	0.0	223.69	219.24	4.45	0.16	4.30	75.0	47.0	2755	1740	107.872
18-Jun	169	132.8	132.8	0.0	223.69	219.35	4.34	0.16	4.18	75.0	57.8	2681	2083	114.333
19-Jun	170	131.8	131.8	0.0	223.69	219.34	4.35	0.16	4.19	75.0	56.8	2688	2053	113.785
20-Jun	171	122.2	122.2	0.0	223.69	219.24	4.45	0.16	4.29	75.0	47.2	2753	1747	108.001
21-Jun	172	124.6	124.6	0.0	223.69	219.26	4.43	0.16	4.27	75.0	49.6	2737	1825	109.498
22-Jun	173	126.0	126.0	0.0	223.69	219.28	4.41	0.16	4.25	75.0	51.0	2727	1872	110.383
23-Jun	174	115.5	115.5	0.0	223.69	219.17	4.52	0.15	4.37	75.0	40.5	2799	1521	103.681
24-Jun	175	118.3	118.3	0.0	223.69	219.20	4.49	0.15	4.34	75.0	43.3	2780	1615	105.488
25-Jun	176	116.0	116.0	0.0	223.69	219.18	4.51	0.15	4.36	75.0	41.0	2796	1536	103.980
26-Jun	177	116.3	116.3	0.0	223.69	219.18	4.51	0.15	4.36	75.0	41.3	2794	1547	104.178
27-Jun	178	117.1	117.1	0.0	223.69	219.19	4.50	0.15	4.35	75.0	42.1	2789	1573	104.679
28-Jun	179	133.9	133.9	0.0	223.69	219.36	4.33	0.16	4.17	75.0	58.9	2673	2117	114.961
29-Jun	180	128.5	128.5	0.0	223.69	219.30	4.39	0.16	4.23	75.0	53.5	2710	1952	111.895
30-Jun	181	112.5	112.5	0.0	223.69	219.14	4.55	0.15	4.40	75.0	37.5	2820	1404	101.371
1-Jul	182	129.4	129.4	0.0	223.69	219.31	4.38	0.16	4.22	75.0	54.4	2704	1982	112.458

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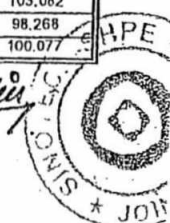


Date	Days	Inflows	Power Flows	Spills	HWL	TWL	Gross Head	Head Loss	Net Head	Turbine Flows		Power		Energy
	(1 year)	(m ³ /s)	(m ³ /s)	(m ³ /s)	(masl)	(masl)	(m)	(m)	(m)	Unit-1	Unit-2	Unit-1	Unit-2	(MWh)
2-Jul	183	129.3	129.3	0.0	223.69	219.31	4.38	0.16	4.22	75.0	54.3	2705	1979	4683
3-Jul	184	133.2	133.2	0.0	223.69	219.35	4.34	0.16	4.18	75.0	58.2	2678	2097	4775
4-Jul	185	133.0	133.0	0.0	223.69	219.35	4.34	0.16	4.18	75.0	58.0	2680	2090	4769
5-Jul	186	133.5	133.5	0.0	223.69	219.35	4.34	0.16	4.17	75.0	58.5	2676	2104	4780
6-Jul	187	132.3	132.3	0.0	223.69	219.34	4.35	0.16	4.19	75.0	57.3	2684	2069	4754
7-Jul	188	133.5	133.5	0.0	223.69	219.35	4.34	0.16	4.17	75.0	58.5	2676	2106	4782
8-Jul	189	134.8	134.8	0.0	223.69	219.37	4.32	0.16	4.16	75.0	59.8	2668	2142	4810
9-Jul	190	135.7	135.7	0.0	223.69	219.38	4.31	0.16	4.15	75.0	60.7	2661	2171	4832
10-Jul	191	130.6	130.6	0.0	223.69	219.32	4.37	0.16	4.20	75.0	55.6	2696	2018	4714
11-Jul	192	133.6	133.6	0.0	223.69	219.35	4.34	0.16	4.17	75.0	58.6	2676	2107	4783
12-Jul	193	135.8	135.8	0.0	223.69	219.38	4.31	0.16	4.15	75.0	60.8	2661	2172	4832
13-Jul	194	132.7	132.7	0.0	223.69	219.34	4.35	0.16	4.18	75.0	57.7	2682	2081	4763
14-Jul	195	133.4	133.4	0.0	223.69	219.35	4.34	0.16	4.17	75.0	58.4	2677	2102	4779
15-Jul	196	110.3	110.3	0.0	223.69	219.12	4.57	0.15	4.42	75.0	35.3	2836	1315	4151
16-Jul	197	110.2	110.2	0.0	223.69	219.12	4.57	0.15	4.42	75.0	35.2	2836	1311	4148
17-Jul	198	123.6	123.6	0.0	223.69	219.25	4.44	0.16	4.28	75.0	48.6	2744	1793	4537
18-Jul	199	126.3	126.3	0.0	223.69	219.28	4.41	0.16	4.25	75.0	51.3	2726	1879	4605
19-Jul	200	117.1	117.1	0.0	223.69	219.19	4.50	0.15	4.35	75.0	42.1	2789	1575	4363
20-Jul	201	122.4	122.4	0.0	223.69	219.24	4.45	0.16	4.29	75.0	47.4	2752	1753	4505
21-Jul	202	119.2	119.2	0.0	223.69	219.21	4.48	0.16	4.33	75.0	44.2	2775	1644	4419
22-Jul	203	120.2	120.2	0.0	223.69	219.22	4.47	0.16	4.32	75.0	45.2	2768	1678	4446
23-Jul	204	130.9	130.9	0.0	223.69	219.33	4.36	0.16	4.20	75.0	55.9	2694	2028	4722
24-Jul	205	128.7	128.7	0.0	223.69	219.30	4.39	0.16	4.23	75.0	53.7	2709	1956	4666
25-Jul	206	127.6	127.6	0.0	223.69	219.29	4.40	0.16	4.24	75.0	52.6	2717	1922	4639
26-Jul	207	118.3	118.3	0.0	223.69	219.20	4.49	0.15	4.34	75.0	43.3	2781	1614	4394
27-Jul	208	110.4	110.4	0.0	223.69	219.12	4.57	0.15	4.42	75.0	35.4	2835	1319	4154
28-Jul	209	121.4	121.4	0.0	223.69	219.23	4.46	0.16	4.30	75.0	46.4	2759	1718	4478
29-Jul	210	107.9	107.9	0.0	223.69	219.09	4.60	0.15	4.45	75.0	32.9	2852	1224	4075
30-Jul	211	105.5	105.5	0.0	223.69	219.07	4.62	0.15	4.47	75.0	30.5	2868	1128	3997
31-Jul	212	108.6	108.6	0.0	223.69	219.10	4.59	0.15	4.44	75.0	33.6	2847	1250	4097
1-Aug	213	123.5	123.5	0.0	223.69	219.25	4.44	0.16	4.28	75.0	48.5	2745	1787	4532
2-Aug	214	121.9	121.9	0.0	223.69	219.24	4.45	0.16	4.30	75.0	48.9	2756	1737	4492
3-Aug	215	118.7	118.7	0.0	223.69	219.20	4.49	0.15	4.33	75.0	43.7	2778	1628	4406
4-Aug	216	116.7	116.7	0.0	223.69	219.18	4.51	0.15	4.35	75.0	41.7	2792	1560	4352
5-Aug	217	120.8	120.8	0.0	223.69	219.22	4.47	0.16	4.31	75.0	45.8	2763	1700	4463
6-Aug	218	112.3	112.3	0.0	223.69	219.14	4.55	0.15	4.40	75.0	37.3	2822	1395	4217
7-Aug	219	108.5	108.5	0.0	223.69	219.10	4.59	0.15	4.44	75.0	33.5	2847	1247	4095
8-Aug	220	108.9	108.9	0.0	223.69	219.10	4.59	0.15	4.44	75.0	33.9	2845	1260	4106
9-Aug	221	121.6	121.6	0.0	223.69	219.23	4.46	0.16	4.30	75.0	46.6	2757	1727	4485
10-Aug	222	110.1	110.1	0.0	223.69	219.12	4.57	0.15	4.42	75.0	35.1	2837	1310	4146
11-Aug	223	115.6	115.6	0.0	223.69	219.17	4.52	0.15	4.37	75.0	40.6	2799	1523	4322
12-Aug	224	117.0	117.0	0.0	223.69	219.19	4.50	0.15	4.35	75.0	42.0	2789	1571	4361
13-Aug	225	112.5	112.5	0.0	223.69	219.14	4.55	0.15	4.40	75.0	37.5	2821	1401	4222
14-Aug	226	114.7	114.7	0.0	223.69	219.16	4.53	0.15	4.38	75.0	39.7	2805	1490	4295
15-Aug	227	108.5	108.5	0.0	223.69	219.10	4.59	0.15	4.44	75.0	33.5	2848	1247	4095
16-Aug	228	110.9	110.9	0.0	223.69	219.12	4.57	0.15	4.42	75.0	35.9	2832	1338	4170

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Date	Days	Inflows	Power Flows	Spills	HWL	TWL	Gross Head	Head Loss	Net Head	Turbine Flows		Power		Energy	
	(1 year)	(m³/s)	(m³/s)	(m³/s)	(masl)	(masl)	(m)	(m)	(m)	Unit-1	Unit-2	Unit-1	Unit-2	Total	(MWh)
17-Aug	229	109.6	109.6	0.0	223.69	219.11	4.58	0.15	4.43	75.0	34.6	2840	1289	4129	99.095
18-Aug	230	109.9	109.9	0.0	223.69	219.11	4.58	0.15	4.43	75.0	34.9	2838	1301	4139	99.332
19-Aug	231	118.2	118.2	0.0	223.69	219.20	4.49	0.15	4.34	75.0	43.2	2781	1612	4393	105.434
20-Aug	232	110.0	110.0	0.0	223.69	219.11	4.59	0.15	4.43	75.0	35.0	2837	1306	4143	99.428
21-Aug	233	110.3	110.3	0.0	223.69	219.12	4.57	0.15	4.42	75.0	35.3	2835	1317	4152	99.653
22-Aug	234	108.2	108.2	0.0	223.69	219.10	4.59	0.15	4.44	75.0	33.2	2850	1236	4085	98.044
23-Aug	235	101.2	101.2	0.0	223.69	219.03	4.66	0.14	4.52	75.0	26.2	2898	962	3860	92.631
24-Aug	236	102.0	102.0	0.0	223.69	219.03	4.66	0.15	4.51	75.0	27.0	2893	990	3883	93.189
25-Aug	237	110.8	110.8	0.0	223.69	219.12	4.57	0.15	4.42	75.0	35.8	2832	1336	4168	100.028
26-Aug	238	108.4	108.4	0.0	223.69	219.10	4.59	0.15	4.44	75.0	33.4	2848	1243	4091	98.186
27-Aug	239	99.7	99.7	0.0	223.69	219.01	4.68	0.14	4.54	75.0	24.7	2908	903	3811	91.470
28-Aug	240	105.6	105.6	0.0	223.69	219.07	4.62	0.15	4.47	75.0	30.6	2868	1133	4000	96.011
29-Aug	241	102.1	102.1	0.0	223.69	219.03	4.66	0.15	4.51	75.0	27.1	2892	995	3887	93.281
30-Aug	242	96.4	96.4	0.0	223.69	218.98	4.71	0.14	4.57	52.5	43.9	2070	1728	3797	91.136
31-Aug	243	96.6	96.6	0.0	223.69	218.98	4.71	0.14	4.57	52.5	44.1	2069	1732	3801	91.221
1-Sep	244	94.6	94.6	0.0	223.69	218.96	4.73	0.14	4.59	52.5	42.1	2079	1661	3740	89.757
2-Sep	245	100.7	100.7	0.0	223.69	219.02	4.67	0.14	4.52	75.0	25.7	2901	941	3843	92.226
3-Sep	246	89.3	89.3	0.0	223.69	218.91	4.78	0.14	4.65	52.5	36.8	2104	1452	3556	85.353
4-Sep	247	95.9	95.9	0.0	223.69	218.97	4.72	0.14	4.58	52.5	43.4	2072	1709	3781	90.741
5-Sep	248	95.4	95.4	0.0	223.69	218.97	4.72	0.14	4.58	52.5	42.9	2075	1689	3764	90.326
6-Sep	249	97.4	97.4	0.0	223.69	218.99	4.70	0.14	4.56	52.5	44.9	2065	1761	3826	91.830
7-Sep	250	90.2	90.2	0.0	223.69	218.91	4.78	0.14	4.64	52.5	37.7	2100	1490	3590	86.151
8-Sep	251	91.8	91.8	0.0	223.69	218.93	4.76	0.14	4.62	52.5	39.3	2092	1556	3649	87.564
9-Sep	252	91.5	91.5	0.0	223.69	218.93	4.76	0.14	4.62	52.5	39.0	2094	1544	3638	87.308
10-Sep	253	91.9	91.9	0.0	223.69	218.93	4.76	0.14	4.62	52.5	39.4	2092	1559	3651	87.520
11-Sep	254	88.2	88.2	0.0	223.69	218.89	4.80	0.14	4.66	52.5	35.7	2110	1405	3515	84.352
12-Sep	255	84.7	84.7	0.0	223.69	218.86	4.83	0.14	4.70	52.5	32.2	2126	1261	3387	81.295
13-Sep	256	85.0	85.0	0.0	223.69	218.86	4.83	0.14	4.69	52.5	32.5	2125	1271	3396	81.509
14-Sep	257	85.3	85.3	0.0	223.69	218.86	4.83	0.14	4.69	52.5	32.8	2124	1284	3408	81.791
15-Sep	258	85.7	85.7	0.0	223.69	218.87	4.82	0.14	4.69	52.5	33.2	2122	1303	3424	82.183
16-Sep	259	86.4	86.4	0.0	223.69	218.88	4.81	0.14	4.68	52.5	33.9	2119	1328	3447	82.720
17-Sep	260	85.4	85.4	0.0	223.69	218.87	4.82	0.14	4.69	52.5	32.9	2123	1288	3411	81.876
18-Sep	261	93.5	93.5	0.0	223.69	218.95	4.74	0.14	4.60	52.5	41.0	2084	1621	3705	88.927
19-Sep	262	94.3	94.3	0.0	223.69	218.96	4.73	0.14	4.59	52.5	41.8	2080	1652	3732	89.565
20-Sep	263	102.9	102.9	0.0	223.69	219.04	4.65	0.15	4.50	75.0	27.9	2886	1028	3914	93.944
21-Sep	264	96.4	96.4	0.0	223.69	218.98	4.71	0.14	4.57	52.5	43.9	2070	1726	3796	91.094
22-Sep	265	96.0	96.0	0.0	223.69	218.97	4.72	0.14	4.58	52.5	43.5	2072	1712	3784	90.812
23-Sep	266	94.6	94.6	0.0	223.69	218.96	4.73	0.14	4.59	52.5	42.1	2079	1662	3741	89.772
24-Sep	267	89.1	89.1	0.0	223.69	218.90	4.79	0.14	4.65	52.5	36.6	2106	1440	3546	85.103
25-Sep	268	95.2	95.2	0.0	223.69	218.96	4.73	0.14	4.58	52.5	42.7	2076	1684	3760	90.228
26-Sep	269	96.4	96.4	0.0	223.69	218.98	4.71	0.14	4.57	52.5	43.9	2070	1725	3795	91.081
27-Sep	270	103.9	103.9	0.0	223.69	219.05	4.64	0.15	4.49	75.0	28.9	2879	1068	3947	94.731
28-Sep	271	113.3	113.3	0.0	223.69	219.15	4.54	0.15	4.39	75.0	38.3	2815	1434	4249	101.978
29-Sep	272	105.4	105.4	0.0	223.69	219.07	4.62	0.15	4.47	75.0	30.4	2869	1127	3995	95.888
30-Sep	273	96.8	96.8	0.0	223.69	218.98	4.71	0.14	4.57	52.5	44.3	2068	1742	3809	91.424
1-Oct	274	97.2	97.2	0.0	223.69	218.99	4.70	0.14	4.56	52.5	44.7	2066	1756	3822	91.731

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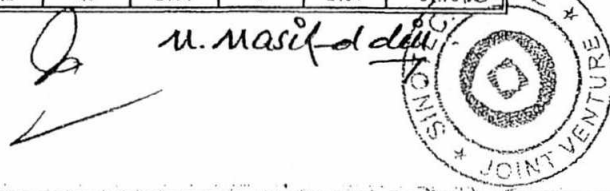
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Date	Days	Inflows	Power Flows		HWL	TWL	Gross Head	Head Loss	Net H	Turbine Flows		Power			Energy
	(1 year)	(m³/s)	(m³/s)	(m³/s)	(masl)	(masl)	(m)	(m)	(m)	Unit-1	Unit-2	Unit-1	Unit-2	Total	(MWh)
2-Oct	275	95.4	95.4	0.0	223.69	218.97	4.72	0.14	4.58	52.5	42.9	2075	1690	3765	90.353
3-Oct	276	89.4	89.4	0.0	223.69	218.91	4.78	0.14	4.65	52.5	36.9	2104	1456	3560	85.434
4-Oct	277	89.0	89.0	0.0	223.69	218.90	4.79	0.14	4.65	52.5	36.5	2106	1436	3542	85.017
5-Oct	278	88.3	88.3	0.0	223.69	218.89	4.80	0.14	4.66	52.5	35.8	2109	1409	3519	84.444
6-Oct	279	79.7	79.7	0.0	223.69	218.81	4.88	0.13	4.75	52.5	27.2	2151	1052	3203	76.876
7-Oct	280	78.9	78.9	0.0	223.69	218.80	4.89	0.13	4.76	52.5	26.4	2155	1021	3176	76.216
8-Oct	281	77.6	77.6	0.0	223.69	218.79	4.90	0.13	4.77	52.5	25.1	2161	967	3128	75.066
9-Oct	282	76.4	76.4	0.0	223.69	218.77	4.92	0.13	4.78	52.5	23.9	2167	919	3086	74.068
10-Oct	283	83.4	83.4	0.0	223.69	218.84	4.85	0.13	4.71	52.5	30.9	2133	1205	3338	80.110
F	284	77.5	77.5	0.0	223.69	218.79	4.90	0.13	4.77	52.5	25.0	2161	965	3126	75.033
12-Oct	285	76.7	76.7	0.0	223.69	218.78	4.91	0.13	4.78	52.5	24.2	2165	932	3098	74.343
13-Oct	286	77.1	77.1	0.0	223.69	218.78	4.91	0.13	4.78	52.5	24.6	2164	945	3109	74.618
14-Oct	287	75.5	75.5	0.0	223.69	218.76	4.93	0.13	4.79	52.5	23.0	2171	881	3052	73.254
15-Oct	288	79.8	79.8	0.0	223.69	218.81	4.88	0.13	4.75	52.5	27.3	2151	1056	3207	76.960
16-Oct	289	91.4	91.4	0.0	223.69	218.93	4.76	0.14	4.62	52.5	38.9	2094	1540	3634	87.215
17-Oct	290	81.4	81.4	0.0	223.69	218.82	4.87	0.13	4.73	52.5	28.9	2143	1124	3267	78.397
18-Oct	291	82.3	82.3	0.0	223.69	218.83	4.86	0.13	4.72	52.5	29.8	2138	1161	3299	79.186
19-Oct	292	77.4	77.4	0.0	223.69	218.78	4.91	0.13	4.77	52.5	24.9	2162	961	3123	74.944
20-Oct	293	82.6	82.6	0.0	223.69	218.84	4.85	0.13	4.72	52.5	30.1	2137	1174	3311	79.460
21-Oct	294	87.3	87.3	0.0	223.69	218.88	4.81	0.14	4.67	52.5	34.8	2114	1368	3482	83.563
22-Oct	295	82.4	82.4	0.0	223.69	218.84	4.85	0.13	4.72	52.5	29.9	2138	1166	3304	79.288
23-Oct	296	81.0	81.0	0.0	223.69	218.82	4.87	0.13	4.74	52.5	28.5	2144	1107	3252	78.048
24-Oct	297	79.6	79.6	0.0	223.69	218.81	4.88	0.13	4.75	52.5	27.1	2151	1049	3201	76.817
25-Oct	298	80.7	80.7	0.0	223.69	218.82	4.87	0.13	4.74	52.5	28.2	2146	1094	3240	77.754
26-Oct	299	75.3	75.3	0.0	223.69	218.76	4.93	0.13	4.80	52.5	22.8	2172	873	3045	73.086
27-Oct	300	73.6	73.6	0.0	223.69	218.74	4.95	0.13	4.82	73.6	0.0	3035	0	3035	72.830
28-Oct	301	71.5	71.5	0.0	223.69	218.71	4.98	0.13	4.85	71.5	0.0	2971	0	2971	71.300
29-Oct	302	64.4	64.4	0.0	223.69	218.61	5.08	0.12	4.95	64.4	0.0	2747	0	2747	65.924
30-Oct	303	66.4	66.4	0.0	223.69	218.64	5.05	0.13	4.93	66.4	0.0	2812	0	2812	67.490
31-Oct	304	64.8	64.8	0.0	223.69	218.62	5.07	0.12	4.95	64.8	0.0	2757	0	2757	66.176
1-Nov	305	69.8	69.8	0.0	223.69	218.69	5.00	0.13	4.88	69.8	0.0	2919	0	2919	70.067
2-Nov	306	79.4	79.4	0.0	223.69	218.80	4.89	0.13	4.75	52.5	26.9	2152	1040	3193	76.628
3-Nov	307	68.0	68.0	0.0	223.69	218.66	5.03	0.13	4.90	68.0	0.0	2863	0	2863	68.721
4-Nov	308	68.5	68.5	0.0	223.69	218.67	5.02	0.13	4.90	68.5	0.0	2878	0	2878	69.080
5-Nov	309	58.0	58.0	0.0	223.69	218.52	5.17	0.12	5.05	58.0	0.0	2526	0	2526	60.633
6-Nov	310	62.2	62.2	0.0	223.69	218.58	5.11	0.12	4.99	62.2	0.0	2671	0	2671	64.105
7-Nov	311	66.0	66.0	0.0	223.69	218.63	5.06	0.12	4.93	66.0	0.0	2796	0	2796	67.108
8-Nov	312	64.4	64.4	0.0	223.69	218.61	5.08	0.12	4.96	64.4	0.0	2745	0	2745	65.878
9-Nov	313	66.4	66.4	0.0	223.69	218.64	5.05	0.13	4.93	66.4	0.0	2812	0	2812	67.488
10-Nov	314	67.1	67.1	0.0	223.69	218.65	5.04	0.13	4.92	67.1	0.0	2833	0	2833	67.983
11-Nov	315	58.9	58.9	0.0	223.69	218.53	5.16	0.12	5.04	58.9	0.0	2558	0	2558	61.384
12-Nov	316	65.4	65.4	0.0	223.69	218.62	5.07	0.12	4.94	65.4	0.0	2777	0	2777	66.645
13-Nov	317	60.0	60.0	0.0	223.69	218.55	5.14	0.12	5.02	60.0	0.0	2595	0	2595	62.290
14-Nov	318	52.0	52.0	0.0	223.69	218.44	5.25	0.12	5.14	52.0	0.0	2304	0	2304	55.308
15-Nov	319	52.1	52.1	0.0	223.69	218.44	5.25	0.12	5.14	52.1	0.0	2308	0	2308	55.380
16-Nov	320	48.2	48.2	0.0	223.69	218.38	5.31	0.11	5.19	48.2	0.0	2154	0	2154	51.704

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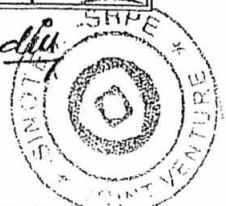
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Date	Days	Inflows	Power Flows	Spills	HWL	TWL	Gross Head	Head Loss	Net Head	Turbine Flows		Power			Energy
	(1 year)	(m³/s)	(m³/s)	(m³/s)	(masl)	(masl)	(m)	(m)	(m)	Unit-1	Unit-2	Unit-1	Unit-2	Total	(MWh)
17-Nov	321	44.9	44.9	0.0	223.69	218.34	5.35	0.11	5.24	44.9	0.0	2026	0	2026	48,629
18-Nov	322	48.7	48.7	0.0	223.69	218.39	5.30	0.11	5.19	48.7	0.0	2175	0	2175	52,204
19-Nov	323	47.2	47.2	0.0	223.69	218.37	5.32	0.11	5.21	47.2	0.0	2118	0	2118	50,823
20-Nov	324	47.5	47.5	0.0	223.69	218.37	5.32	0.11	5.20	47.5	0.0	2128	0	2128	51,083
21-Nov	325	49.7	49.7	0.0	223.69	218.40	5.29	0.12	5.17	49.7	0.0	2213	0	2213	53,123
22-Nov	326	49.8	49.8	0.0	223.69	218.41	5.28	0.12	5.17	49.8	0.0	2220	0	2220	53,286
23-Nov	327	48.6	48.6	0.0	223.69	218.39	5.30	0.11	5.19	48.6	0.0	2174	0	2174	52,166
24-Nov	328	43.8	43.8	0.0	223.69	218.32	5.37	0.11	5.26	43.8	0.0	1981	0	1981	47,535
25-Nov	329	42.0	42.0	0.0	223.69	218.29	5.40	0.11	5.28	42.0	0.0	1907	0	1907	45,763
26-Nov	330	43.7	43.7	0.0	223.69	218.32	5.37	0.11	5.26	43.7	0.0	1978	0	1978	47,465
27-Nov	331	41.9	41.9	0.0	223.69	218.29	5.40	0.11	5.28	41.9	0.0	1905	0	1905	45,731
28-Nov	332	56.0	56.0	0.0	223.69	218.49	5.20	0.12	5.08	56.0	0.0	2456	0	2456	58,940
29-Nov	333	62.1	62.1	0.0	223.69	218.58	5.11	0.12	4.99	62.1	0.0	2669	0	2669	64,054
30-Nov	334	62.6	62.6	0.0	223.69	218.59	5.10	0.12	4.98	62.6	0.0	2685	0	2685	64,429
1-Dec	335	60.5	60.5	0.0	223.69	218.56	5.13	0.12	5.01	60.5	0.0	2611	0	2611	62,669
2-Dec	336	56.6	56.6	0.0	223.69	218.50	5.19	0.12	5.07	56.6	0.0	2476	0	2476	59,433
3-Dec	337	49.3	49.3	0.0	223.69	218.40	5.29	0.12	5.18	49.3	0.0	2201	0	2201	52,820
4-Dec	338	50.3	50.3	0.0	223.69	218.41	5.28	0.12	5.16	50.3	0.0	2239	0	2239	53,731
5-Dec	339	48.7	48.7	0.0	223.69	218.39	5.30	0.11	5.19	48.7	0.0	2177	0	2177	52,245
6-Dec	340	48.2	48.2	0.0	223.69	218.38	5.31	0.11	5.19	48.2	0.0	2156	0	2156	51,754
7-Dec	341	45.0	45.0	0.0	223.69	218.34	5.35	0.11	5.24	45.0	0.0	2030	0	2030	48,726
8-Dec	342	45.2	45.2	0.0	223.69	218.34	5.35	0.11	5.24	45.2	0.0	2037	0	2037	48,892
9-Dec	343	43.5	43.5	0.0	223.69	218.32	5.37	0.11	5.26	43.5	0.0	1969	0	1969	47,265
10-Dec	344	43.9	43.9	0.0	223.69	218.32	5.37	0.11	5.26	43.9	0.0	1983	0	1983	47,595
11-Dec	345	43.5	43.5	0.0	223.69	218.32	5.37	0.11	5.26	43.5	0.0	1971	0	1971	47,292
12-Dec	346	45.1	45.1	0.0	223.69	218.34	5.35	0.11	5.24	45.1	0.0	2033	0	2033	48,797
13-Dec	347	45.8	45.8	0.0	223.69	218.35	5.34	0.11	5.23	45.8	0.0	2061	0	2061	49,466
14-Dec	348	46.0	46.0	0.0	223.69	218.35	5.34	0.11	5.23	46.0	0.0	2067	0	2067	49,609
15-Dec	349	54.4	54.4	0.0	223.69	218.47	5.22	0.12	5.10	54.4	0.0	2397	0	2397	57,526
16-Dec	350	47.3	47.3	0.0	223.69	218.37	5.32	0.11	5.21	47.3	0.0	2122	0	2122	50,940
17-Dec	351	46.5	46.5	0.0	223.69	218.36	5.33	0.11	5.22	46.5	0.0	2091	0	2091	50,175
18-Dec	352	46.8	46.8	0.0	223.69	218.36	5.33	0.11	5.21	46.8	0.0	2102	0	2102	50,445
19-Dec	353	46.0	46.0	0.0	223.69	218.35	5.34	0.11	5.22	46.0	0.0	2071	0	2071	49,698
20-Dec	354	45.9	45.9	0.0	223.69	218.35	5.34	0.11	5.23	45.9	0.0	2084	0	2084	49,539
21-Dec	355	43.9	43.9	0.0	223.69	218.32	5.37	0.11	5.26	43.9	0.0	1984	0	1984	47,620
22-Dec	356	50.8	50.8	0.0	223.69	218.42	5.27	0.12	5.16	50.8	0.0	2257	0	2257	54,174
23-Dec	357	52.7	52.7	0.0	223.69	218.45	5.24	0.12	5.13	52.7	0.0	2329	0	2329	55,897
24-Dec	358	49.9	49.9	0.0	223.69	218.41	5.28	0.12	5.17	49.9	0.0	2221	0	2221	53,302
25-Dec	359	56.6	56.6	0.0	223.69	218.50	5.19	0.12	5.07	56.6	0.0	2477	0	2477	59,439
26-Dec	360	52.9	52.9	0.0	223.69	218.45	5.24	0.12	5.12	52.9	0.0	2338	0	2338	56,110
27-Dec	361	35.7	35.7	0.0	223.69	218.21	5.48	0.11	5.38	35.7	0.0	1622	0	1622	38,929
28-Dec	362	21.2	21.2	0.0	223.69	217.98	5.71	0.09	5.62	21.2	0.0	0	0	0	0.000
29-Dec	363	19.2	19.2	0.0	223.69	217.92	5.77	0.09	5.69	19.2	0.0	0	0	0	0.000
30-Dec	364	9.6	9.6	0.0	223.69	217.61	6.08	0.04	6.04	9.6	0.0	0	0	0	0.000
31-Dec	365	9.7	9.7	0.0	223.69	217.61	6.08	0.04	6.03	9.7	0.0	0	0	0	0.000

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Annexure 9

Scheduled Outage, Forced Outage & Total Outage (Hours)
For WAPDA Hydel Power Stations

Station	Scheduled Outage (Hours)				Total	Forced Outage (Hours)	Total Outage (Hours)
	Annual Mtce.	Major O.H	Monthly Mtce.	Maintenance Works			
Tarbela	540	-	60	200	800	100	900
Ghazi Barotha	528	-	48	224	800	100	900
Mangla	360	432	48	160	1,000	100	1,100
Warsak	720	720	60	400	1,900	200	2,100
Chashma	528	-	48	224	800	100	900
Dargai	540	-	60	400	1,000	100	1,100
Rasul	528	-	48	224	800	100	900
Shadiwal	528	-	48	224	800	100	900
Nandipur	528	-	48	224	800	100	900
Chichoki	528	-	48	224	800	100	900
Kurram Garhi	528	-	48	224	800	100	900
Renala	528	-	48	224	1,000	100	1,100
Chitral	528	-	48	224	800	100	900

The above schedule is subject to review after 5 years.
Total outage is sum of Schedule Outage & Forced Outage during an Agreement Year.