

No. CPPA/CEO/PIU/2024/9565-76

Dated: May 8th, 2024

The Registrar,
NEPRA Tower Ataturk (East)
G 5/1, Islamabad

REGISTRAR OFFICE
Dy No: 5009
Date: 10.5.24

SUBJECT: Projection of Power Purchase Price for FY 2024-25**References:** CPPA, Letter No. CPPA/CEO/PIU/2024/9565-66 Dated: 30th April 2024.

This letter is in continuation of our previous correspondence and the Power Purchase Price (PPP) Forecast Report for FY 2024-25, which was submitted as per the directions of the Authority.

It is pertinent to highlight that the Table 7 of the previously submitted Power Purchase Price (PPP) Forecast Report for FY 2024-25 contains incorrect data. In this regard, the revised Table 7 with accurate values is provided below herewith for any future assessments pertaining to the PPP references for FY 2024-25.

Table 7. Service Charges and NTDC Losses

FY	UoSC	MoF	NTDC Losses
	Rs/KW/Month	Rs/KW/Month	%
2024-25	235.3	3.48	3.05

Source: NEPRA

Provided further, the report with updated Table 7 is provided at Annex A for your reference.

TARIFF (DEPARTMENT)

Dir (T-I)..... Dir (T-II).....
Dir (T-III)..... Dir (T-IV).....
Dir (T-V)..... Addl. Dir (RE).....
Date: 13-05-24

Majid Khan
Chief Executive Officer
CPPA (G)

CC:

- JS(P&F), Ministry of Energy (Power Division)
 - Master File

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1. Introduction:

Under the applicable regulatory framework, CPPA-G is required to submit the Power Purchase Price (PPP) forecast references to NEPRA for the upcoming year. Accordingly, in alignment with the transfer pricing mechanism and billing & settlement procedure, as provided under the approved commercial code, this document hereby provides Power Purchase Price references for FY 2024-25.

In this regard, during the preparation of the PPP forecast FY 2024-25 multiple organizations including NPCC, PLL, NEPRA, K-Electric, PPMC, and the Ministry of Energy Power Division (MoE (PD)) have been consulted to ensure mutual consensus throughout the entire process. Furthermore, the data regarding the key assumptions set including electricity demand, fuel prices, hydrology, service charges, and economic parameters was sought from different sectoral entities/relevant platforms. The document is hereby submitted for due consideration of the Authority, aiming to facilitate in the determination of monthly references for FY 2024-25.

2. Scenarios for Power Purchase Price Forecast FY 2024-25

In accordance with the directions of the authority, seven scenarios have been prepared for the projection of PPP references for FY 2024-25. Each scenario includes specific assumptions regarding critical variables affecting PPP including demand growth, exchange rate, hydrology, and fuel prices. These scenarios are outlined in Table 1 below for reference.

Table 1. Scenario for PPP Forecast FY 2024-25

Scenario No.	Demand	Exchange Rate	Hydrology	Fuel Prices
1	Normal	275	Normal	Normal
2	High	275	Normal	Normal
3	DISCO	275	Normal	Normal
4	Normal	300	Normal	Normal
5	High	300	Normal	Normal
6	Normal	275	Low	Normal
7	Normal	275	Normal	High imported fuel prices

3. Assumptions

In alignment with the scenarios, as outlined in section 2, the assumptions categorize each set utilized for the preparation of power purchase prices reference for FY 2024-25, as detailed in the sub-sections below.

3.1. Demand

Electricity demand serves as the primary variable in the determination of the PPP forecast. Any variations in demand affect end consumer tariffs accordingly. In this regard, three scenarios have been finalized after due consultation with the relevant entities.

- i) Normal Demand (3% increase against Mar 23 - Feb 24)
- ii) High Demand (5% increase against Mar 23 - Feb 24)
- iii) XW-DISCOS' Demand

The scenario-wise demand assumptions for XW-DISCOS' and K-Electric have been provided in Tables 2 and 3 below. It is highlighted that, increased energy allocation to K-Electric has been assumed from October 2024 onwards due to the prospective commissioning of the K.K.I grid station (interconnection capacity 950 MW) after due consultation with K-Electric.

Table 2. Demand Assumptions - XW-DISCOS'

Months	Demand 132 KV Level (GWh)		
	Normal	High	DISCOS'
Jul-24	14,025	14,297	14,251
Aug-24	15,160	15,454	15,239
Sep-24	12,578	12,822	13,302
Oct-24	8,798	8,968	9,638
Nov-24	6,796	6,928	7,733
Dec-24	6,910	7,044	7,770
Jan-25	7,474	7,619	7,809
Feb-25	6,449	6,575	6,860
Mar-25	7,923	8,077	8,466
Apr-25	9,278	9,458	9,963
May-25	11,499	11,722	12,604
Jun-25	12,959	13,210	14,209

Source: NPCC

Table 3. Demand Assumptions - K-Electric

Months	Demand (132 KV Level)	
	GWh	MDI
Jul-24	869	1,200
Aug-24	850	1,200
Sep-24	859	1,200
Oct-24	1,079	2,050
Nov-24	933	2,050
Dec-24	778	1,783
Jan-25	758	1,663
Feb-25	732	1,693
Mar-25	966	2,050
Apr-25	950	2,050
May-25	1,072	2,050
Jun-25	1,184	2,050

Source: K-Electric

3.2. Hydrology

To evaluate the impact of hydrology, two scenarios have been considered for the preparation PPP forecast FY 2024-25, as provided in Table 4, one scenario is based on a 5-year average hydrology, and the other reflects low hydrology in preceding years.

Table 4. Hydrology Assumptions (MW)

Months	Normal Hydrology	Low Hydrology
Jul-24	8,111	6,960
Aug-24	8,442	7,801
Sep-24	7,178	6,433
Oct-24	3,942	3,402
Nov-24	4,042	3,602
Dec-24	2,227	2,062
Jan-25	1,205	762
Feb-25	2,846	2,374
Mar-25	2,244	2,092
Apr-25	4,483	4,146
May-25	6,690	6,000
Jun-25	8,158	5,801

Source: NPCC

3.3. Fuel Prices

Fuel prices significantly impact the fuel cost component of the Power Purchase Price. Accordingly, assumptions concerning normal fuel prices are provided in Table 5 as follows:

Table 5. Fuel Price Assumptions

Months	Gas	RLNG	Imp Coal (API-4)	Imp Coal (ICI-3)	Imp Coal (ICI-4)	Thar Coal	RFO	Baggase	HSD
	Rs./MMBTU	\$/MMBTU	\$/MTon	\$/MTon	\$/MTon	Rs./MTon	\$/MTon	Rs./MTon	\$/Litre
Jul-24	1050	12.76	126.09	97.49	79.37	14,382	608	5,542	1.04
Aug-24	1050	12.89	126.09	97.49	79.37	14,382	614	5,542	1.04
Sep-24	1050	13.42	126.09	97.49	79.37	14,382	611	5,542	1.04
Oct-24	1050	13.49	125.59	96.79	79.37	14,382	609	5,542	1.04
Nov-24	1050	14.89	121.19	96.79	79.37	14,382	590	5,542	1.04
Dec-24	1050	13.14	121.19	96.79	79.37	14,382	570	5,542	1.04
Jan-25	1050	14.31	118.29	94.69	76.38	14,382	557	5,542	1.04
Feb-25	1050	13.54	118.29	94.69	76.38	14,382	536	5,542	1.04
Mar-25	1050	12.84	122.68	94.69	76.38	14,382	530	5,542	1.04
Apr-25	1050	12.09	122.68	94.69	76.38	14,382	535	5,542	1.04
May-25	1050	11.65	122.68	94.69	76.38	14,382	534	5,542	1.04
Jun-25	1050	11.65	122.68	94.69	76.38	14,382	533	5,542	1.04

Source: Argus Media, Platts, OGRA, NEPRA & TCEB

Furthermore, a 5% increase in imported fuel prices (imported coal, RLNG, RFO, and HSD) compared to the normal rates has been assumed for the evaluation of PPP references FY2024-25 for scenario 7.

3.4. Economic Parameters

Projections for the economic parameters including LIBOR, KIBOR, US inflation, and Pak inflation are provided in Table 6 below for reference.

Table 6. Economic Parameter Assumptions

FY	KIBOR	LIBOR	PAK Inflation	US Inflation
	%	%	%	%
2024-25	21.37	5.31	12.20	2.40

Source: IMF, SBP, NEPRA, & Globalrates.com

3.5. Service Charges and NTDC Losses

Projections for the service charges including use of system charges (UoSC), market operator fee (MoF), etc, and NTDC losses are provided in Table 7.

Table 7. Service Charges and NTDC Losses

FY	UoSC	MoF	NTDC Losses
	Rs/KW/Month	Rs/KW/Month	%
2024-25	235.3	3.48	3.05

Source: NEPRA

3.6. Commissioning and Retirement of Power Plants for FY 2024-25

The assumptions regarding the commissioning and retirement of power plants have been incorporated into the projections for the power purchase price for FY 2024-25. Details concerning the commissioning of new power plant projects for FY 2024-25, relative to their expected completion dates (CODs), are outlined in the table below.

Table 8. Expected completion dates of Power Plant Projects

Power Plant	Expected COD
870 MW Sukhi Kinari Hydro Project	30-Nov-2024
100 MW Zorlu Solar Power Project	11-Oct-2024
32 MW Shahtaj Sugar Mill Limited	31-Aug-2024

Source: CPPA-G

3.7. Other Assumptions

The other assumptions utilized for the preparation of power purchase prices reference for FY 2024-25 are detailed as follows:

- HVDC+AC Corridor transfer capability has been limited to 4500 MW in summer 2024, 2600 in winter and 5000 MW (with the commissioning of Lahore north) in summer 2025 starting from May 2025 under Normal Operation arrangement of SCS Strategy table as provided by M/s. NARI.¹
- 50 % imported coal must offtake contractual obligation is not assumed in this dispatch².
- RLNG + RFO projections are provided based on assumed demand scenarios, however real time fuel demand can vary as per prevailing system conditions and will be dealt with in accordance with contractual arrangements³.
- Renewable energy generation is based on the previous year's energy profile⁴.
- DISCO Demand is provided by PPMC.
- The annual Capacity payment of Neelum Jhelum has been assumed as Rs. 69 billion⁵.
- Import from Iran, small power producers, and net metering have not been considered in the analysis.
- HSRPEL, PQEPC, CPHGCL, and LEPCL have been assumed to operate on imported coal only.

^{1, 2, 3, 4, 5}As provided by NPCC.

- Future projects incorporation is considered to the best of knowledge and technical assessments; however, the actual dispatch may vary in accordance with prevailing system conditions.

4. Scenario Results

This section outlines seven scenarios, each defined by distinct variation in assumptions concerning demand, hydrology, fuel prices, and exchange rates, while other parameters are held consistent with the provided assumptions. The tables below provide the monthly projections for power purchase prices for each scenario for FY 2024-25.

1) Scenario 1

Table 9. Projected Power Purchase Price FY 2024-25 Scenario 1

Months	Sold to DISCOs Mln Units	Fuel Cost		VO&M		Capacity Charges		Power Purchase Price	
		Mln Rs	Rs/kWh	Mln Rs	Rs/kWh	Mln Rs	Rs/kWh	Mln Rs	Rs/kWh
Jul	14,894	129,534	8.70	6,788	0.46	187,687	12.60	324,009	21.75
Aug	16,010	139,523	8.71	7,748	0.48	184,352	11.51	331,623	20.71
Sep	13,436	122,799	9.14	7,062	0.53	179,838	13.38	309,699	23.05
Oct	9,876	94,824	9.60	5,154	0.52	169,746	17.19	269,723	27.31
Nov	7,729	57,232	7.41	3,121	0.40	161,500	20.90	221,854	28.71
Dec	7,687	76,629	9.97	3,327	0.43	173,666	22.59	253,621	32.99
Jan	8,232	100,204	12.17	4,992	0.61	174,610	21.21	279,806	33.99
Feb	7,181	57,463	8.00	2,820	0.39	157,806	21.98	218,089	30.37
Mar	8,889	77,597	8.73	4,267	0.48	176,137	19.82	258,001	29.02
Apr	10,228	73,830	7.22	4,375	0.43	181,320	17.73	259,525	25.37
May	12,570	86,745	6.90	5,752	0.46	200,236	15.93	292,733	23.29
Jun	14,143	109,810	7.76	7,173	0.51	199,154	14.08	316,137	22.35
Grand Total	130,876	1,126,191	8.61	62,578	0.48	2,146,051	16.40	3,334,820	25.48

2) Scenario 2

Table 10. Projected Power Purchase Price FY 2024-25 Scenario 2

Months	Sold to DISCOs Mln Units	Fuel Cost		VO&M		Capacity Charges		Power Purchase Price	
		Mln Rs	Rs/kWh	Mln Rs	Rs/kWh	Mln Rs	Rs/kWh	Mln Rs	Rs/kWh
Jul	15,166	132,285	8.72	7,046	0.46	187,830	12.38	327,161	21.57
Aug	16,304	144,670	8.87	7,973	0.49	184,506	11.32	337,148	20.68
Sep	13,681	126,569	9.25	7,249	0.53	179,969	13.15	313,787	22.94
Oct	10,047	98,015	9.76	5,243	0.52	169,851	16.91	273,109	27.18
Nov	7,862	58,802	7.48	3,243	0.41	161,591	20.55	223,636	28.45
Dec	7,822	78,770	10.07	3,433	0.44	173,761	22.21	255,964	32.72
Jan	8,377	103,741	12.38	5,148	0.61	174,704	20.85	283,593	33.85
Feb	7,306	58,390	7.99	2,972	0.41	157,899	21.61	219,261	30.01
Mar	9,043	80,505	8.90	4,446	0.49	176,235	19.49	261,186	28.88
Apr	10,408	76,227	7.32	4,527	0.43	181,418	17.43	262,172	25.19
May	12,794	89,812	7.02	5,831	0.46	200,347	15.66	295,990	23.13
Jun	14,394	114,294	7.94	7,318	0.51	199,294	13.85	320,905	22.29
Grand Total	133,205	1,162,080	8.72	64,427	0.48	2,147,406	16.12	3,373,914	25.33

3) Scenario 3

Table 11. Projected Power Purchase Price FY 2024-25 Scenario 3

Months	Sold to DISCOs Mln Units	Fuel Cost		VO&M		Capacity Charges		Power Purchase Price	
		Mln Rs	Rs/kWh	Mln Rs	Rs/kWh	Mln Rs	Rs/kWh	Mln Rs	Rs/kWh
Jul	15,121	131,798	8.72	7,003	0.46	187,806	12.42	326,607	21.60
Aug	16,089	141,203	8.78	7,820	0.49	184,393	11.46	333,416	20.72
Sep	14,161	133,984	9.46	7,543	0.53	180,229	12.73	321,757	22.72
Oct	10,717	112,413	10.49	5,637	0.53	170,267	15.89	288,317	26.90
Nov	8,666	70,027	8.08	3,762	0.43	162,143	18.71	235,932	27.22
Dec	8,547	89,423	10.46	3,990	0.47	174,276	20.39	267,689	31.32
Jan	8,564	110,601	12.91	5,584	0.65	174,826	20.41	291,010	33.98
Feb	7,591	62,405	8.22	3,176	0.42	158,112	20.83	223,693	29.47
Mar	9,432	90,177	9.56	4,857	0.51	176,484	18.71	271,518	28.79
Apr	10,913	87,528	8.02	4,963	0.45	181,698	16.65	274,189	25.12
May	13,676	98,752	7.22	6,653	0.49	200,789	14.68	306,194	22.39
Jun	15,393	127,784	8.30	7,998	0.52	199,827	12.98	335,609	21.80
Grand Total	138,872	1,256,095	9.04	68,986	0.50	2,150,849	15.49	3,475,929	25.03

4) Scenario 4

Table 12. Projected Power Purchase Price FY 2024-25 Scenario 4

Months	Sold to DISCOs Mln Units	Fuel Cost		VO&M		Capacity Charges		Power Purchase Price	
		Mln Rs	Rs/kWh	Mln Rs	Rs/kWh	Mln Rs	Rs/kWh	Mln Rs	Rs/kWh
Jul	14,894	139,286	9.35	6,777	0.45	199,091	13.37	345,153	23.17
Aug	16,010	150,300	9.39	7,771	0.49	195,423	12.21	353,494	22.08
Sep	13,437	131,688	9.80	7,068	0.53	190,837	14.20	329,592	24.53
Oct	9,876	101,480	10.28	5,154	0.52	180,239	18.25	286,872	29.05
Nov	7,729	60,758	7.86	3,140	0.41	171,487	22.19	235,385	30.45
Dec	7,687	81,765	10.64	3,334	0.43	184,748	24.03	269,847	35.10
Jan	8,232	107,100	13.01	4,992	0.61	185,837	22.57	297,929	36.19
Feb	7,181	61,235	8.53	2,820	0.39	167,787	23.37	231,842	32.29
Mar	8,889	82,277	9.26	4,267	0.48	187,361	21.08	273,904	30.81
Apr	10,228	78,556	7.68	4,375	0.43	192,778	18.85	275,709	26.96
May	12,570	92,927	7.39	5,751	0.46	212,852	16.93	311,529	24.78
Jun	14,142	117,865	8.33	7,173	0.51	211,541	14.96	336,579	23.80
Grand Total	130,876	1,205,236	9.21	62,620	0.48	2,279,980	17.42	3,547,837	27.11

5) Scenario 5

Table 13. Projected Power Purchase Price FY 2024-25 Scenario 5

Months	Sold to DISCOs Mln Units	Fuel Cost		VO&M		Capacity Charges		Power Purchase Price	
		Mln Rs	Rs/kWh	Mln Rs	Rs/kWh	Mln Rs	Rs/kWh	Mln Rs	Rs/kWh
Jul	15,166	142,256	9.38	7,050	0.46	199,234	13.14	348,540	22.98
Aug	16,305	155,457	9.53	7,975	0.49	195,577	12.00	359,008	22.02
Sep	13,681	135,988	9.94	7,243	0.53	190,968	13.96	334,199	24.43
Oct	10,047	104,917	10.44	5,243	0.52	180,345	17.95	290,504	28.91
Nov	7,861	62,416	7.94	3,243	0.41	171,577	21.83	237,236	30.18
Dec	7,822	84,127	10.76	3,431	0.44	184,843	23.63	272,401	34.82
Jan	8,377	110,814	13.23	5,275	0.63	185,931	22.19	302,020	36.05
Feb	7,306	62,356	8.53	2,958	0.40	167,880	22.98	233,194	31.92
Mar	9,043	85,442	9.45	4,443	0.49	187,459	20.73	277,344	30.67
Apr	10,408	81,577	7.84	4,493	0.43	192,877	18.53	278,946	26.80
May	12,794	95,944	7.50	5,926	0.46	212,962	16.65	314,832	24.61
Jun	14,395	122,747	8.53	7,301	0.51	211,682	14.71	341,730	23.74
Grand Total	133,205	1,244,040	9.34	64,580	0.48	2,281,335	17.13	3,589,955	26.95

6) Scenario 6

Table 14. Projected Power Purchase Price FY 2024-25 Scenario 6

Months	Sold to DISCOs Mln Units	Fuel Cost		VO&M		Capacity Charges		Power Purchase Price	
		Mln Rs	Rs/kWh	Mln Rs	Rs/kWh	Mln Rs	Rs/kWh	Mln Rs	Rs/kWh
Jul	14,894	140,943	9.46	7,425	0.50	186,587	12.53	334,955	22.49
Aug	16,010	149,494	9.34	7,991	0.50	183,524	11.46	341,010	21.30
Sep	13,436	130,384	9.70	7,321	0.54	178,901	13.31	316,606	23.56
Oct	9,876	102,500	10.38	5,285	0.54	169,066	17.12	276,851	28.03
Nov	7,729	60,598	7.84	3,335	0.43	161,019	20.83	224,951	29.11
Dec	7,688	76,966	10.01	3,419	0.44	173,690	22.59	254,076	33.05
Jan	8,232	110,580	13.43	5,459	0.66	174,038	21.14	290,077	35.24
Feb	7,181	61,805	8.61	2,953	0.41	157,272	21.90	222,029	30.92
Mar	8,889	80,010	9.00	4,366	0.49	175,902	19.79	260,278	29.28
Apr	10,228	76,581	7.49	4,534	0.44	180,836	17.68	261,952	25.61
May	12,571	90,841	7.23	6,129	0.49	199,401	15.86	296,370	23.58
Jun	14,142	134,002	9.48	7,704	0.54	196,619	13.90	338,325	23.92
Grand Total	130,876	1,214,705	9.28	65,921	0.50	2,136,854	16.33	3,417,480	26.11

7) Scenario 7

Table 15. Projected Power Purchase Price FY 2024-25 Scenario 7

Months	Sold to DISCOs Mln Units	Fuel Cost		VO&M		Capacity Charges		Power Purchase Price	
		Mln Rs	Rs/kWh	Mln Rs	Rs/kWh	Mln Rs	Rs/kWh	Mln Rs	Rs/kWh
Jul	14,893	134,072	9.00	6,796	0.46	187,687	12.60	328,555	22.06
Aug	16,010	144,241	9.01	7,747	0.48	184,352	11.51	336,341	21.01
Sep	13,436	127,022	9.45	7,062	0.53	179,838	13.38	313,922	23.36
Oct	9,876	97,681	9.89	5,154	0.52	169,746	17.19	272,580	27.60
Nov	7,729	58,417	7.56	3,141	0.41	161,501	20.89	223,059	28.86
Dec	7,688	78,761	10.24	3,327	0.43	173,666	22.59	255,754	33.27
Jan	8,232	103,183	12.53	4,992	0.61	174,610	21.21	282,785	34.35
Feb	7,181	58,904	8.20	2,820	0.39	157,806	21.98	219,530	30.57
Mar	8,889	79,387	8.93	4,267	0.48	176,137	19.82	259,791	29.23
Apr	10,228	75,690	7.40	4,375	0.43	181,320	17.73	261,384	25.56
May	12,571	89,768	7.14	5,734	0.46	200,236	15.93	295,738	23.53
Jun	14,143	113,632	8.03	7,161	0.51	199,154	14.08	319,946	22.62
Grand Total	130,877	1,160,759	8.87	62,575	0.48	2,146,052	16.40	3,369,385	25.74

5. Submission & Recommendations

The PPP forecast has been submitted to the Authority for consideration in setting monthly PPP references for FY2025, prepared following extensive consultations conducted within the regulatory framework. In this regard, various scenarios based on demand, fuel prices, hydrology, and economic parameters have been developed to assist the Authority in the tariff-setting process.

It is pertinent to highlight that the results/outputs provided here-in, are indicative in nature and may change on account of variation of underlying assumptions set including, commissioning schedules, future generation fleet, fuel prices, demand forecasts, exchange rate parity, inflation. Moreover, monthly references for power purchase price presented in the report does not account for differential adjustments that may be allowed/disallowed, as the case maybe.

Accordingly, it is suggested that the Authority may take into account the projection of Power Purchase Price references outlined in the report, along with its independent assessments in order to arrive at the finalized PPP references FY 2024-25.

