



NATIONAL TRANSMISSION & DESPATCH COMPANY LTD.

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OFFICE OF THE
GENERAL MANAGER (SO)
NATIONAL POWER CONTROL CENTRE,
SECTOR H-8/I, ISLAMABAD.

No. 18379-92/GM (SO)/PPC/MO

Dated: 01/12/2021

OFFICE ORDER

SUBJECT: REVISED MERIT ORDER

Reference: CPPA-G/MIT/4401-07

Dated: 30.11.2021

Revised Merit Order based on revised fuel prices (received to this office on 30-11-2021) for the economic despatch of thermal power plants (GENCO'S & IPPs) effective from 01-12-2021 (Time 12:50 Hrs) is hereby issued for implementation.


GENERAL MANAGER (S.O.)
NPCC, NTDC ISLAMABAD

DISTRIBUTION:

1. Chief Engineer (Operation Planning), NPCC, NTDC, Islamabad
2. Chief Engineer (Network Operation), NPCC, NTDC, Islamabad
3. Director Private Power Control, NPCC, NTDC, Islamabad
4. Director Power Control, NPCC, NTDC, Islamabad.
5. NPCC Control Room, all Supervisory Shift Engineers.

COPY TO:

1. PS to Secretary Ministry of Power (Energy) for information please.
2. Special Secretary, Power Division for information please.
3. M.D (NTDC), WAPDA House Lahore for information please.
4. Registrar NEPRA, NEPRA Tower Islamabad.
5. Chief Financial Officer (CFO CPPA-GL), Shaheen Plaza, Plot no. 73-West, Blue Area Islamabad.
6. Chief Technical Officer (CTO CPPA-GL), Shaheen Plaza, Plot no. 73-West, Blue Area Islamabad.
7. Chief Technical Officer (GENCO Holding), OPP Building G-5/2 Islamabad.
8. General Manager Power System Planning NTDC, 4th Floor PIA Building Lahore.
9. Director I.T NTDC, WAPDA House Lahore.

MERIT ORDER

Based on Revised Fuel Prices, Effective From 01-12-2021 or Subsequent Date

Sr.No.	Plant Groups	Fuel Type	Other Cost Rs./kWh	Fuel Cost Rs./kWh	VO&M Cost Rs./kWh	Specific Cost Rs./kWh	Status in Last Merit Order
1	UCH (upto 152,375 MWh)	Gas	0.07737	1.40541	0.39260	1.87538	1
2	LIBERTY Power (Upto 61,904 MWh)	Gas	-	1.78299	0.54480	2.32779	2
3	Engro Power Thar	Coal	-	2.40770	1.08990	3.49760	3
4	747 MW GUDDU (CCP)	Gas	-	5.94510	0.59530	6.54040	4
5	KAPCO B-I	Gas	-	6.80852	0.38816	7.19668	5
6	Guddu (CCP) B-I (Unit 11-13)	Gas	-	7.31270	0.06890	7.38160	6
7	UCH (above 152,375 MWh)	Gas	0.07737	7.03676	0.39260	7.50673	7
8	Foundation Power	Gas	-	6.90815	0.65460	7.56275	8
9	UCH-II	Gas	-	7.32970	0.37950	7.70920	9
10	KAPCO B-II	Gas	-	7.46781	0.45404	7.92185	10
11	GTPS Faisalabad B-IV (Unit 5-9)	Gas	-	7.76900	0.16250	7.93150	12
12	Engro Power Gen	Gas	-	7.36622	0.57840	7.94462	11
13	Guddu (CCP) B-II (Unit 5-10)	Gas	-	8.12500	0.06890	8.19390	13
14	KAPCO B-III	Gas	-	7.72358	0.87518	8.59876	14
15	China Power HUB Gen CO	Coal	-	8.63820	0.52210	9.16030	15
16	HCPC	Gas	1.88660	6.71381	0.83750	9.43771	16
17	LIBERTY Power (Above 61,904 MWh)	Gas	-	8.91494	0.54480	9.45974	17
18	747 MW GUDDU (OC)	Gas	-	8.87260	0.59530	9.46790	18
19	Muzaffargarh B-II (Unit 4)	Gas	-	9.46890	0.16250	9.63140	19
20	Muzaffargarh B-I (Unit -3)	Gas	-	9.48230	0.16250	9.64480	20
21	Jamshoro B-II (Unit 4)	Gas	-	9.65670	0.09250	9.74920	21
22	Muzaffargarh B-I (Unit -1)	Gas	-	9.68440	0.16250	9.84690	22
23	Jamshoro B-I (Unit 3)	Gas	-	9.86160	0.09250	9.95410	23
24	Muzaffargarh B-I (Unit -2)	Gas	-	9.81200	0.16250	9.97450	24
25	Jamshoro B-II (Unit 2)	Gas	-	10.12630	0.09250	10.21880	25
26	Muzaffargarh B-III (Unit -5)	Gas	-	10.06360	0.16250	10.22610	26
27	Muzaffargarh B-III (Unit -6)	Gas	-	10.32980	0.16250	10.49230	27
28	KAPCO B-I (S/Cycl)	Gas	-	10.21278	0.38816	10.60094	28
29	PORT QASIM	Coal	-	10.73060	0.20430	10.93490	29
30	KAPCO B-II (S/Cycl)	Gas	-	11.20172	0.45404	11.65576	30
31	Jamshoro B-II (Unit 4)	Mix.(****)	-	12.06450	0.09250	12.15700	31
32	Jamshoro B-II (Unit 3)	Mix.(****)	-	12.32950	0.09250	12.42200	32
33	KAPCO B-III (S/Cycl)	Gas	-	11.58537	0.87518	12.46055	33
34	Jamshoro B-II (Unit 2)	Mix.(****)	-	12.66550	0.09250	12.75800	34
35	Sahiwal Power	Coal	-	12.84930	0.20120	13.05050	35
36	NPPMC - HBS (CC)	RLNG	-	16.12179	0.21260	16.33439	36
37	NPPMC - Baloki (CC)	RLNG	-	16.24847	0.23710	16.48557	37
38	QATPL - Bhikki (CC)	RLNG	-	16.27741	0.59530	16.87271	38
39	Jamshoro B-II (Unit 4)	Mix.(**)	-	19.10275	0.09250	19.19525	39
40	KAPCO B-I	HSD	-	19.16240	0.39032	19.55272	42
41	Jamshoro B-II (Unit 3)	Mix.(**)	-	19.51225	0.09250	19.60475	40
42	Jamshoro B-II (Unit 2)	Mix.(**)	-	20.04840	0.09250	20.14090	43
43	Orient Power Company Ltd	RLNG	-	19.82491	0.39850	20.22341	41
44	Muzaffargarh B-II (Unit 4)	Mix.(**)	-	20.13190	0.16250	20.29440	47
45	Muzaffargarh B-I (Unit 3)	Mix.(**)	-	20.16155	0.16250	20.32405	48
46	Sapphire Electric Co	RLNG	-	19.81145	0.67040	20.48185	44
47	Halmore Power	RLNG	-	19.81262	0.68100	20.49362	45
48	Saif Power	RLNG	-	19.82673	0.67790	20.50463	46
49	Nandipur (CC)	RLNG	-	20.09030	0.67290	20.76320	49
50	Muzaffargarh B-I (Unit 1)	Mix.(**)	-	20.60140	0.16250	20.76390	50
51	Muzaffargarh B-I (Unit 2)	Mix.(**)	-	20.87870	0.16250	21.04120	52
52	KAPCO B-I	RLNG	-	20.69583	0.38816	21.08399	51
53	NPPMC - HBS (CC)	HSD	-	20.98115	0.27570	21.25685	53
54	NPPMC - Baloki (CC)	HSD	-	21.14197	0.30090	21.44287	54
55	Narowal Power	RFO	-	20.11290	1.40680	21.51970	58
56	QATPL - Bhikki (CC)	HSD	-	20.65729	0.87820	21.53549	55
57	KAPCO B-II	HSD	-	21.03096	0.52478	21.55574	60
58	Muzaffargarh B-III (Unit 5)	Mix.(**)	-	21.42700	0.16250	21.58950	56
59	Attock Gen	RFO	-	20.55660	1.60620	22.16280	65
60	Muzaffargarh B-III (Unit 6)	Mix.(**)	-	22.00855	0.16250	22.17105	59
61	ROUSCH	RLNG	-	21.82407	0.40969	22.23376	57

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MERIT ORDER

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62	Nishat Power Ltd	RFO	-	20.73210	1.68600	22.31710	61
63	KAPCO B-I	RFO	-	21.79339	0.67332	22.46671	70
64	Atlas Power	RFO	-	20.93860	1.58510	22.52360	62
65	PAKGEN Power Ltd.	RFO	-	22.71988	0.25071	22.97059	64
66	KAPCO B-III	HSD	-	21.75049	1.32620	23.07569	69
67	KAPCO B-II	RLNG	-	22.69986	0.45404	23.15389	63
68	Liberty Power Tech Limited	RFO	-	21.72950	1.73560	23.46510	76
69	Engro PowerGen	HSD	-	22.99799	0.59040	23.58839	68
70	ALTERN ENERGY LTD. (Ph-II)	RLNG	-	22.46105	1.15240	23.61345	66
71	FKPCL	RLNG	-	22.68018	1.10014	23.78032	67
72	Nishat Chunian Power Ltd	RFO	-	22.42490	1.61600	24.04090	78
73	KAPCO B-III	RLNG	-	23.47732	0.87518	24.35250	71
74	Halmore Power	HSD	-	23.69320	0.98310	24.67630	73
75	KAPCO B-II	RFO	-	23.91861	0.94779	24.86640	79
76	GTPS Faisalabad B-IV (Unit 5-9)	RLNG	-	25.06730	0.16250	25.22980	74
77	KEL	RFO	-	24.49591	0.87526	25.37117	88
78	SASA	RFO	-	25.20065	0.25718	25.45783	72
79	HUBCO	RFO	-	25.60449	0.26000	25.86449	77
80	LALPIR (Pvt) Ltd	RFO	-	26.03116	0.25071	26.28187	78
81	Jamshoro B-I (Unit 1)	RFO	-	26.68690	0.09250	26.77940	82
82	Davis Energen	RLNG	-	25.94835	0.84540	26.79375	80
83	Orient Power Company Ltd	HSD	-	26.18760	0.65330	26.84090	81
84	Sapphire Electric Co	HSD	-	26.06720	0.96760	27.03480	83
85	Saif Power	HSD	-	26.29780	0.97850	27.27630	84
86	Jamshoro B-II (Unit 4)	RFO	-	28.54880	0.09250	28.64130	85
87	Muzaffargarh B-II (Unit 4)	RLNG	-	28.78280	0.16250	28.94530	86
88	Muzaffargarh B-I (Unit -3)	RLNG	-	28.82350	0.16250	28.98600	87
89	KAPCO B-I (S/Cycl)	HSD	-	28.74360	0.39032	29.13392	96
90	Jamshoro B-II (Unit 3)	RFO	-	29.16290	0.09250	29.25540	89
91	Muzaffargarh B-I (Unit -1)	RLNG	-	29.43760	0.16250	29.60010	90
92	Jamshoro B-II (Unit 4)	Mix.(****)	-	29.60190	0.09250	29.69440	91
93	Muzaffargarh B-II (Unit 4)	Mix.(****)	-	29.78885	0.16250	29.95135	93
94	Muzaffargarh B-I (Unit -2)	RLNG	-	29.82570	0.16250	29.98820	92
95	Muzaffargarh B-I (Unit 3)	Mix.(****)	-	29.83215	0.16250	29.99465	94
96	ALTERN ENERGY LTD. (Ph-I)	RLNG	-	28.86021	1.15240	30.01261	95
97	Jamshoro B-II (Unit 2)	RFO	-	29.97050	0.09250	30.06300	97
98	Jamshoro B-II (Unit 3)	Mix.(****)	-	30.23405	0.09250	30.32655	98
99	Muzaffargarh B-I (Unit 1)	Mix.(****)	-	30.47800	0.16250	30.64050	101
100	Jamshoro B-II (Unit 4)	RLNG	-	30.65500	0.09250	30.74750	99
101	Muzaffargarh B-III (Unit -5)	RLNG	-	30.59030	0.16250	30.75280	100
102	Muzaffargarh B-II (Unit 4)	RFO	-	30.79490	0.16250	30.95740	103
103	Muzaffargarh B-I (Unit -3)	RFO	-	30.84080	0.16250	31.00330	104
104	Muzaffargarh B-I (Unit 2)	Mix.(****)	-	30.88555	0.16250	31.04805	102
105	Jamshoro B-II (Unit 2)	Mix.(****)	-	31.05815	0.09250	31.15065	105
106	Jamshoro B-II (Unit 3)	RLNG	-	31.30520	0.09250	31.39770	106
107	KAPCO B-I (S/Cycl)	RLNG	-	31.04375	0.38816	31.43191	107
108	Muzaffargarh B-III (Unit -6)	RLNG	-	31.39940	0.16250	31.56190	108
109	Muzaffargarh B-I (Unit -1)	RFO	-	31.51840	0.16250	31.68090	109
110	Muzaffargarh B-III (Unit 5)	Mix.(****)	-	31.69035	0.16250	31.85285	110
111	KAPCO B-II (S/Cycl)	HSD	-	31.54644	0.52478	32.07122	115
112	Muzaffargarh B-I (Unit -2)	RFO	-	31.94540	0.16250	32.10790	112
113	Jamshoro B-II (Unit 2)	RLNG	-	32.14580	0.09250	32.23830	111
114	Muzaffargarh B-III (Unit 6)	Mix.(****)	-	32.54335	0.16250	32.70585	113
115	Muzaffargarh B-III (Unit -5)	RFO	-	32.79040	0.16250	32.95290	114
116	KAPCO B-I (S/Cycl)	RFO	-	32.69009	0.67332	33.36341	119
117	Muzaffargarh B-III (Unit -6)	RFO	-	33.68730	0.16250	33.84980	116
118	KAPCO B-III (S/Cycl)	HSD	-	32.62574	1.32520	33.95094	118
119	KAPCO B-I (S/Cycl)	RLNG	-	34.04978	0.45404	34.50382	117
120	KAPCO B-III (S/Cycl)	RLNG	-	35.21598	0.87518	36.09116	120
121	KAPCO B-II (S/Cycl)	RFO	-	35.87792	0.94779	36.82570	121

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MERIT ORDER

Based on Revised Fuel Prices, Effective From 01-12-2021 or Subsequent Date


The calculation of fuel cost Rs./kWh and O&M cost Rs./kWh has not been calculated by NPCC Islamabad. The same has been communicated to NPCC by Chief Financial Officer CPPA-G vide letter No.CPPA-G/MIT/4401-07, dated 30-11-2021 received in the office of General Manager (System Operation) through Email dated 30-11-2021, because NPCC has no any Data regarding heat rate, fuel cost and O&M cost etc.

Notes:

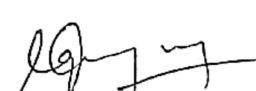
- 1 Fuel Index for HUBCO also includes Heat Rate & C.Value on the basis of 100% load. The PLAC payable to HUBCO must be kept in view by NPCC. The bonus payable to IPPs when dispatch exceeds the bonus threshold specified in the PPAs of the respective IPPs must be kept in view.
- 2 General Sales Tax is not included in the above calculations.
- 3 RFO rates are on per Metric Ton, HSD rates are on per Litre, Gas rates are in MMBTU except KAPCO.
- 4 Other cost of Uch Power is due to Excise duty on gas.
- 5 RFO Revised Rates are calculated on the basis of weighted average fuel stock as provided by relevant IPP is used for merit order. Where accurate fuel stock position is not available, latest FCC rate is used for merit order.
- 6 While the IPPs operating on RLNG. Latest available RLNG rates as notified by OGRA have been used.
- 7 Fixed costs have not been used for merit order compilation pursuant to SDC 14.3.2 of the Grid Code 2005.
- 8 Plant Availability on Any specific Fuel must be confirmed before the Dispatch is given. Cost of transmission losses on dispatch of plants may be given due consideration
- 9 The FCC rates have been assumed at 100% plant factor i.e. unity Part Load Correction factor. These rates may vary at different operation / Dispatch level after application of Part Load Correction (PLAC) factors given in the PPA. Therefore, PLAC be taken into account before issuing dispatch instructions.
- 10 The dedicated gas projects require minimum despatch of 50% against their availability on gas under respective PPAs, otherwise, shortfall energy have to be paid.
- 11 Guddu (W/O CCP) B-I unit 11-13 and B-II unit 5-10 are excluded due to the tariff not approved by NEPRA. However NPCC could restore O.C operation of TPS Guddu old blocks subject to understanding that payment will be made on C.C tariff until open cycle tariff is granted by NEPRA.
- 12 Engro PowerGen excluded on Mixed Fuel (50% HSD and 50% Gas) due to Marginal Cost concept i.e. additional demand to be made on alternate fuel.

- ** Mixed: 50% FO and 50% Gas
- *** Mixed: 50% HSD and 50% Gas
- **** Mixed: 50% FO and 50% RLNG
- ***** Mixed: Gas and RLNG


- Note:
- 1- System Operator will ensure stable power supply in accordance with the Grid Code clause SDC 1.4.3 Page 185 Grid Code and specially the subclause 1.4.3.3 Page 185 Grid Code & subclause 1.4.3.4 Page 186 Grid Code
 - 2- Merit list issued is only a part of that Grid Code for operation.
 - 3- System Operator will give first priority to smooth, stable, uninterrupted power supply by utilizing all available resources as per demand.

 Chief Technical Officer (GECOs Holding Co.)

 Chief Technical Officer (CTO CPPA-G)

 General Manager Power System Planning (NTDC)

 Chief Financial Officer (CFO CPPA-G)

 General Manager (System Operation) NPCC (NTDC)
Convener