

I/30059/2023



भारत सरकार/ Government of India

विद्युत मंत्रालय/ Ministry of Power

केन्द्रीय विद्युत प्राधिकरण/ Central Electricity Authority

आर. ए. प्रभाग/ Regulatory Affairs Division

सेवा में /To

1. Secretary, Ministry of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi- 110001.
2. Secretary, Ministry of New & Renewable Energy, Atal Akshay Urja Bhawan, CGO Complex, Lodhi Road, New Delhi- 110003.
3. Secretary, CERC, Chanderlok Building, Janpath, New Delhi- 110001.

विषय: जुलाई, 2023 माह की मार्केट मॉनिटरिंग रिपोर्ट।**Subject: Monthly Market Monitoring Report for the month of July, 2023.**

महोदय/ Sir,

जुलाई, 2023 माह के लिए केंद्रीय विद्युत प्राधिकरण द्वारा तैयार की गई मासिक मार्केट मॉनिटरिंग रिपोर्ट (MMMR) की एक प्रति सूचना और अवलोकन के लिए संलग्न है। A copy of the monthly market monitoring report (MMMR) prepared by central Electricity Authority for the month of July, 2023 is enclosed herewith for kind information and perusal.

जुलाई, 2023 माह के दौरान मार्केट के संचालन की मुख्य विशेषताएं इस प्रकार रही। Key highlights of the market operation during July, 2023 are as under:

- (i) जुलाई, 2023 माह में देश में कुल 136,441 MU विद्युत का कारोबार किया गया, जिसमें से 69,402 MU का कारोबार अंतर्राज्यीय पारेषण प्रणाली (Inter State Transmission System) के माध्यम से किया गया था और शेष राज्य नियंत्रित उत्पादन स्टेशनों से अंतरराज्यीय पारेषण प्रणाली (Intra State Transmissions System) के माध्यम से किया गया। In the month of July, 2023 a total of 136,441 MU of electricity was transacted in the country out of which 69,402 MU was transacted through ISTS, and the remaining through state controlled generating stations through Intra State Transmissions System.
- (ii) अल्पावधि मार्केट के अंतर्गत कुल 22,137 MU का कारोबार किया गया था, जिसमें से 9,094 MU पावर एक्सचेंजों के माध्यम से कारोबार किया गया और शेष द्विपक्षीय कारोबार और विचलन (deviations) के रूप में हुआ। इस प्रकार अल्पावधि कारोबार, जुलाई, 2023 माह में ट्रेड की गई विद्युत की कुल मात्रा का 16.22 % था और 6.67 % पावर एक्सचेंजों के माध्यम से रहा। A total of 22,137 MU was transacted under Short Term Market, out of

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which 9,094 MU was transacted through Power Exchanges and remaining happened as bilateral transactions & deviations. Thus, the total short term trade in July, 2023 was 16.22 % of total volume of electricity traded in July, 2023 and 6.67 % was through Power Exchanges.

- (iii) यदि हम अंतर्राज्यीय पारेषण प्रणाली (ISTS) के माध्यम से आपूर्ति की गई विद्युत के संबंध में इन कारोबारों की तुलना करते हैं, तो अल्पावधि कारोबार अंतर्राज्यीय पारेषण प्रणाली (ISTS) कारोबार का लगभग 31.90 % रहा, जिसमें से पावर एक्सचेंजों के माध्यम से कारोबार 13.10 % रहा। If we compare these transactions with respect to the electricity supplied through ISTS, the short term transactions constitutes about 31.90 % of ISTS transactions, out of which transaction through the power exchanges constitutes 13.10 %.

भवदीय/ Yours faithfully,

Pradeep Jindal
04/09/2023

(प्रदीप जिंदल/ Pardeep Jindal)

मुख्य अभियंता (आर.ए.)/ Chief Engineer (RA)

प्रतिलिपि/ Copy for information, through email, to:

1. O/o Chairperson, CEA
2. O/o Member (E&C), CEA
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CEA website (<https://cea.nic.in/market-monitoring-report/?lang=en>)



सत्यमेव जयते

मासिक मार्केट मॉनिटरिंग रिपोर्ट - जुलाई, 2023

Monthly Market Monitoring Report July, 2023



भारत सरकार/ Government of India

विद्युत मंत्रालय/ Ministry of Power

केन्द्रीय विद्युत प्राधिकरण/ Central Electricity Authority

आर. ए. प्रभाग/ Regulatory Affairs Division

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**जुलाई, 2023 की मासिक मार्केट
मॉनिटरिंग रिपोर्ट का सारांश**

**Summary of Market Monitoring Report
For the month of July, 2023**

जुलाई, 2023 माह के लिए सारांश Summary for Month: July, 2023

भारत में विद्युत एक्सचेंजों पर विद्युत के व्यापार का सारांश

Summary of Electricity Transactions on Power Exchanges in India

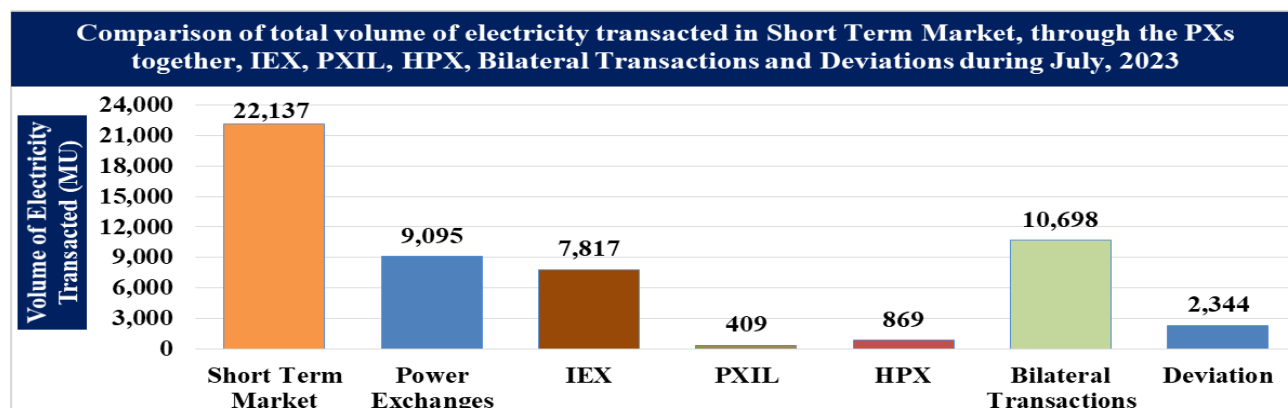
- जुलाई, 2023 के दौरान विद्युत एक्सचेंजों (यानी आईईएक्स, पीएक्सआईएल और एचपीएक्स) के माध्यम से कुल **9,094 MU** विद्युत का कारोबार किया गया। विद्युत की यह मात्रा डिलीवरी की तारीख के आधार पर है और इसमें DAM, GDAM, RTM, TAM, DAC & ID, GTAM और G-DAC & ID मार्केट खंडों के माध्यम से कारोबार शामिल हैं।
A total volume of **9,094 MU** electricity was transacted through power exchanges i.e. IEX, PXIL & HPX, during the month of July, 2023. This volume of electricity is on delivery date basis and includes transactions through DAM, GDAM, RTM, TAM, DAC & ID, GTAM and G-DAC & ID market segments.

Segment	Transactions happened in the PXs (IEX, PXIL & HPX combined)			
	FSV (MU)	Average MCP (₹/kWh)	Congestion (MU)	Real Time Curtailment (MU)
DAM	3,966	4.52	0.00	0.00
GDAM	212	4.31	0.00	0.00
RTM	2,540	4.55	0.78	0.00
TAM	462	5.09	0.01	6.98
DAC & ID	1761	5.54	2.41	15.93
GTAM	6	6.30	0.00	0.00
G-DAC & ID	147	4.77	0.07	0.00
Total in PXs	9,094	4.75*	3.27	22.91

* The total average is weighted average of all market segments.

- द्विपक्षीय व्यापार के तहत कुल **10,698 MU** विद्युत का कारोबार किया गया और **2,344 MU** को विचलन के रूप में स्थानांतरित किया गया। इस प्रकार कुल **22,137 MU** विद्युत का कारोबार अल्पावधि व्यापार के रूप में किया गया था। जुलाई, 2023 के महीने में देश में कुल **136,441 MU** विद्युत की आपूर्ति की गई थी, इस प्रकार जुलाई, 2023 माह में कारोबार की गई विद्युत की कुल मात्रा में अल्पावधि बाजार का हिस्सा **16.22 %** था।

Under the Bilateral trade a total of **10,698 MU** of electricity was transacted and **2,344 MU** was transferred as deviation. Thus a total of **22,137 MU** of electricity was transacted as short term trade. In the month of July, 2023 a total of **136,441 MU** of electricity was supplied in the country, thus the share of short term market in the total volume of electricity supplied in July, 2023 was **16.22 %**.



- जुलाई, 2023 के दौरान संचरण जाम की कुल मात्रा **3.27 MU** थी, जो की विद्युत एक्सचेंजों में कारोबार की गई विद्युत की कुल मात्रा का केवल 0.04 % है और जुलाई, 2023 के महीने के दौरान आपूर्ति की गई कुल ऊर्जा का 0.002 % है।

The total volume of transmission congestion that happened during the month of July, 2023 was **3.27 MU** which is only 0.04 % of the total volume of electricity transacted in the power exchanges and 0.002 % of total energy supplied during the month of July, 2023.

RTM में 2 दिन अर्थात् दिनांक 7 एवं 13 जुलाई, 2023, TAM में 1 दिन अर्थात् दिनांक 26 जुलाई, 2023, DAC & ID में 3 दिन अर्थात् दिनांक 22, 23 एवं 26 जुलाई, 2023 और G-DAC & ID में 3 दिन अर्थात् दिनांक 22, 23 एवं 26 जुलाई, 2023 को संचरण जाम देखा गया। जबकि DAM, GDAM और GTAM में कोई संचरण जाम नहीं देखा गया। जुलाई, 2023 माह के महीने में रिपोर्ट की गई वास्तविक समय में विद्युत कटौती की कुल मात्रा केवल **22.91 MU** थी।

Transmission congestion observed in RTM on 2 days i.e. 7th & 13th July, 2023, TAM on 1 day i.e. 26th July, 2023, DAC & ID on 3 days i.e. 22nd, 23rd & 26th July, 2023 and G-DAC & ID on 3 days i.e. 22nd, 23rd & 26th July, 2023. Whereas, there was no congestion happened in DAM, GDAM & GTAM. The total volume of real time curtailment reported in the month of July, 2023 was only **22.91 MU**.

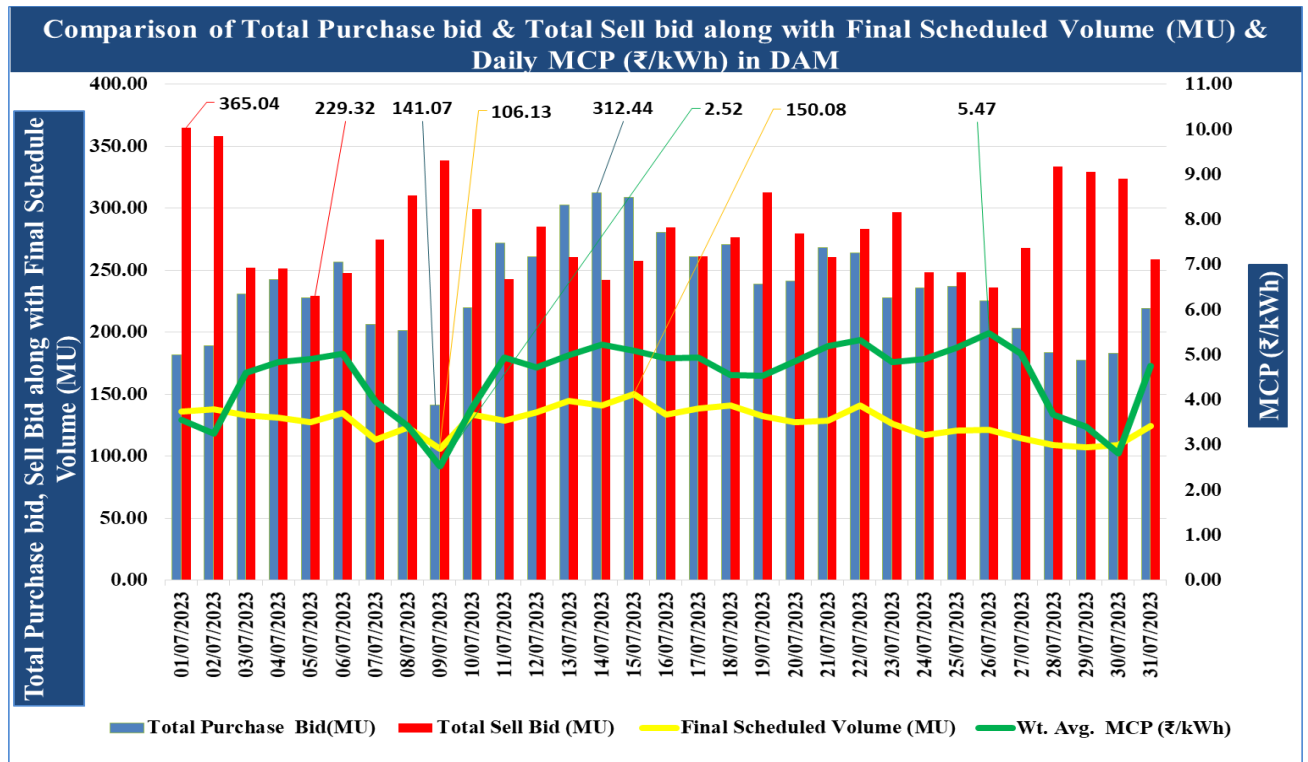
- जुलाई, 2023 माह के दौरान अंतर्राज्यीय पारेषण प्रणाली (ISTS) में निर्धारित अनुसूचित विद्युत की कुल मात्रा **69,402 MU** थी। जुलाई, 2023 के महीने में अल्पावधि बाजार में विद्युत का लेन-देन अंतर्राज्यीय पारेषण प्रणाली (ISTS) के माध्यम से अनुसूचित की गई कुल विद्युत की मात्रा का **31.90 %** रहा।

The total volume of electricity scheduled at ISTS during the month of July, 2023 was **69,402 MU**. The total volume of electricity transacted in the short term market was **31.90 %** of total volume schedule at ISTS in the month of July, 2023.

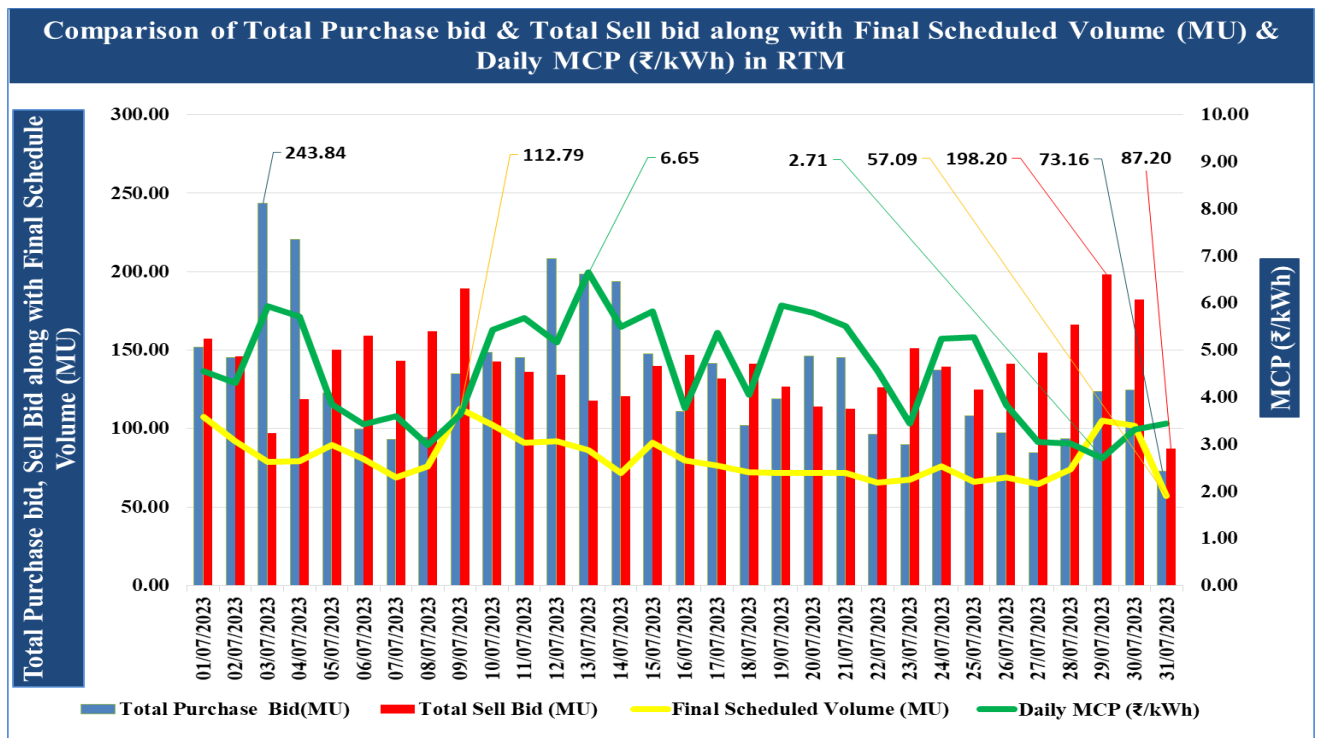
- जुलाई, 2023 माह के दौरान DAM और RTM में विद्युत की खरीद और बिक्री बोलियों, अंतिम अनुसूचित मात्रा और दैनिक औसत MCP की भिन्नता निम्नलिखित चित्रों में दर्शाई गई है:

The variation of Purchase and Sell bids, Final Scheduled Volume and Daily Avg. MCP in DAM and RTM during the month of July, 2023 are shown in following figures:

DAM Volume



RTM Volume

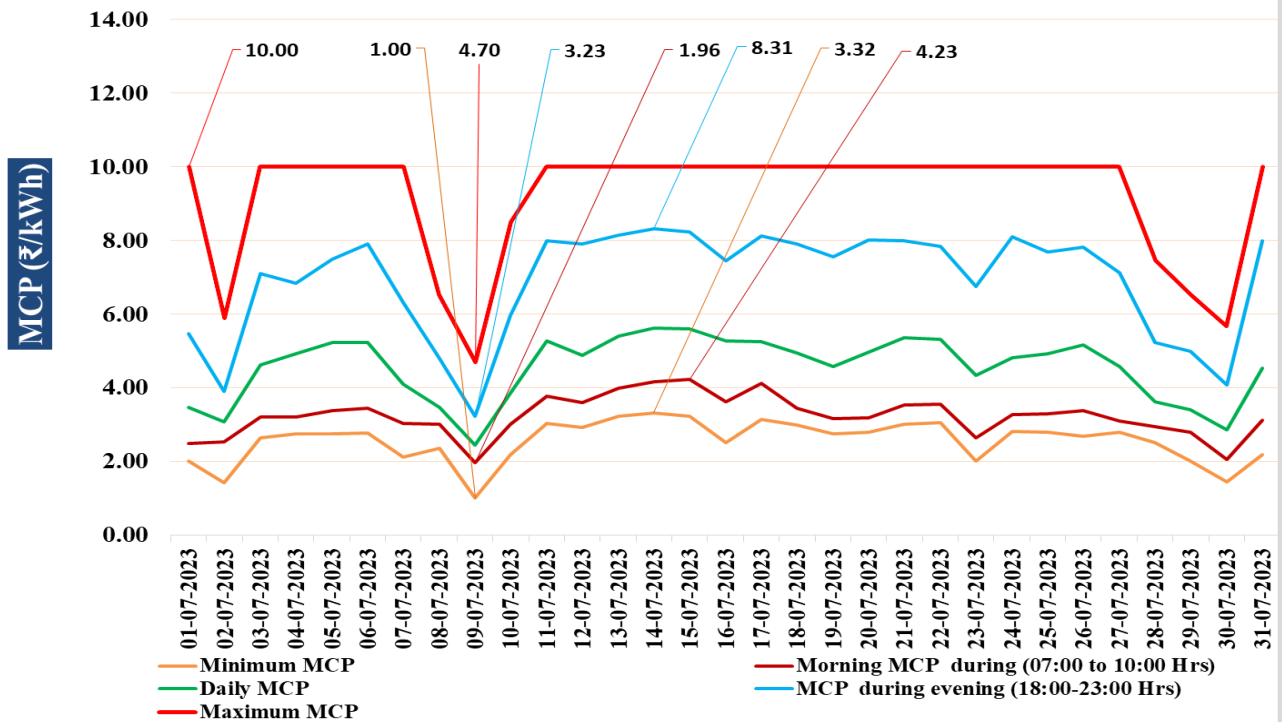


- जुलाई, 2023 माह के दौरान DAM और RTM में अधिकतम, न्यूनतम, दैनिक, सुबह और शाम के समय MCP की भिन्नता निम्नलिखित चित्रों में दिखाई गई है:

The variation of Maximum, Minimum, Daily, Morning and Evening time MCPs in DAM and RTM during the month of July, 2023 are shown in following figures:

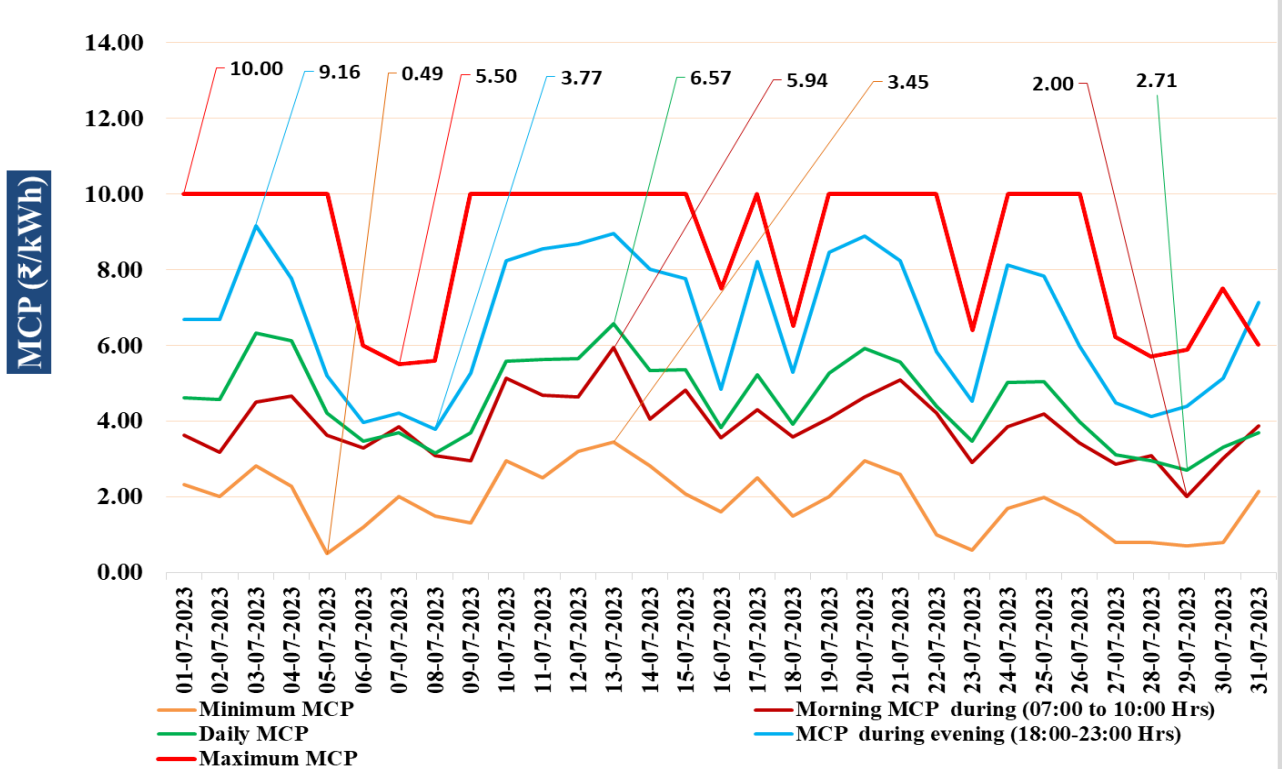
DAM Prices

Comparison of Maximum, Minimum, Daily, Morning time and Evening time MCP (₹/kWh) in DAM



RTM Prices

Comparison of Maximum, Minimum, Daily, Morning time and Evening time MCP (₹/kWh) in RTM



MARKET MONITORING REPORT DETAILS

Electricity Transactions on Power Exchanges in India

1. Day Ahead Market (DAM)

- 1.1.** The total volume of electricity transacted on the power exchanges, viz., IEX and PXIL in the Day Ahead Market (DAM) in the month of July, 2023 was **3,966.20 MU**. The total energy supplied in the country during the month of July, 2023 was 136,441 MU. Thus, the volume of electricity transacted on the power exchanges in DAM during July, 2023 was 2.91 % of the total energy supplied in the country. Comparing with the total volume of electricity transacted in DAM during the past month i.e. June, 2023, it was **4,123.37 MU** which was 2.92 % of the total energy supplied (141,093 MU) in the country during June, 2023. Similarly, the total volume of electricity transacted in DAM during previous year i.e. July, 2022, was **3,549.86 MU** which was 2.77 % of the total energy supplied (128,255 MU) in the country during July, 2022.
- 1.2.** The volume of electricity transacted on IEX during July, 2023 was **3,966.20 MU**. No transaction of electricity took place in PXIL & HPX. The volume of electricity transacted on IEX and PXIL during June, 2023 were **4,123.34 MU** and **0.03 MU**, respectively. No transaction of electricity took place in HPX. The volume of electricity transacted on IEX, PXIL and HPX during July, 2022, were **3,516.65 MU**, **31.78 MU** and **1.43 MU** respectively.
- 1.3.** The DAM volume for July, 2023 in IEX is inclusive of Cross Border Transactions of Electricity with Nepal and Bhutan (details given at **Annexure XII**), which was **257.74 MU** (i.e. 6.62 MU buy by Nepal and 251.12 MU sell by Nepal).
- 1.4.** The Average Market Clearing Price (MCP) on IEX during the month of July, 2023 was ₹ **4.52/kWh**, which shows a decrease of 12.40 % & 17.82 % when compared with average MCP's for the month of June, 2023 and July, 2022, which were ₹ **5.16/kWh** and ₹ **5.50/kWh**, respectively. No transaction of electricity took place in PXIL & HPX.

1.5. Market Clearing Price, Area Clearing Price and Final Scheduled Volume of DAM in the Power Exchanges

Final Scheduled Volume (FSV), Daily Avg. Market Clearing Prices (MCP), Area Clearing Prices (ACP) in Day Ahead Market during the month of July, 2023 as compared with June, 2023 and July, 2022 is given in Table- 1A & 1B:

(a) Final Scheduled Volume:

Exchange	Period	Final Scheduled Volume (MU)			
		Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
IEX	July, 2023*	3966.20	106.13	150.08	127.94
	June, 2023*	4123.34	114.91	170.59	137.44
	%Change (Month over Month)	-3.81	-7.64	-12.02	-6.91
	July, 2022*	3516.65	84.42	159.86	113.44
	%Change (Year over Year)	12.78	25.72	-6.12	12.78
PXIL	July, 2023	-	-	-	-
	June, 2023	0.03	0.03	0.03	0.03
	%Change (Month over Month)	NA	NA	NA	NA
	July, 2022	31.78	0.39	2.06	1.03
	%Change (Year over Year)	NA	NA	NA	NA
HPX	July, 2023	-	-	-	-
	June, 2023	-	-	-	-
	%Change (Month over Month)	NA	NA	NA	NA
	July, 2022	1.43	0.10	1.33	0.71
	%Change (Year over Year)	NA	NA	NA	NA

-: No transaction took place

NA: Not Applicable

* DAM Volume in IEX is inclusive of Cross Border Transactions of Electricity with Nepal and Bhutan

Table: 1A

(b) Daily Avg. Market Clearing Price (MCP) and Area Clearing Price (ACP):

Exchange	Period	Prices (₹/kWh)				
		Daily MCP (₹/kWh)		ACP (₹/kWh)		Monthly Avg. MCP (₹/kWh)
		Minimum	Maximum	Minimum	Maximum	Average
IEX	July, 2023	2.52	5.47	1.00	10.00	4.52
	June, 2023	2.90	6.40	1.33	10.00	5.16
	%Change (Month over Month)	-13.10	-14.53	-24.81	0.00	-12.40
	July, 2022	3.00	7.41	1.50	12.00	5.50
	%Change (Year over Year)	-16.00	-26.18	-33.33	-16.67	-17.82
PXIL	July, 2023	-	-	-	-	-
	June, 2023	10.00	10.00	10.00	10.00	10.00
	%Change (Month over Month)	NA	NA	NA	NA	NA
	July, 2022	3.49	6.58	2.00	12.00	5.01
	%Change (Year over Year)	NA	NA	NA	NA	NA

Exchange	Period	Prices (₹/kWh)				
		Daily MCP (₹/kWh)		ACP (₹/kWh)		Monthly Avg. MCP (₹/kWh)
		Minimum	Maximum	Minimum	Maximum	Average
HPX	July, 2023	-	-	-	-	-
	June, 2023	-	-	-	-	-
	%Change (Month over Month)	NA	NA	NA	NA	NA
	July, 2022	5.65	12.00	4.50	12.00	8.83
	%Change (Year over Year)	NA	NA	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table: 1B

- 1.1.** The maximum Area Clearing Price (ACP) of ₹ 10.00/kWh in IEX was observed in all 13 regions during 413 time blocks on 1st, 3rd to 7th, 11th to 27th & 31st July, 2023. As there was no congestion in transmission system, the MCP for these time blocks was also ₹ 10.00/kWh. Whereas, in PXIL & HPX, no transaction of electricity took place in the month of July, 2023.
- 1.2.** The minimum ACP of ₹ 1.00/kWh in IEX was observed in all 13 regions during the time block 12:00 - 12:15 to 12:45 - 13:00 Hrs on 9th July, 2023. As there was no congestion in transmission system, the MCP for this time-block was also ₹ 1.00/kWh. Whereas, in PXIL & HPX, no transaction of electricity took place in the month of July, 2023.

2. Real Time Market (RTM)

The total volume of electricity transacted on the power exchanges in Real Time Market in July, 2023 was **2,540.45 MU**, out of which **2,540.45 MU** (100 %) was transacted in IEX and no transaction took place in PXIL and HPX. The Final Scheduled Volume (FSV), Daily Avg. Market Clearing Prices (MCP) and Area Clearing Prices (ACP) in Real Time Market during the month of July, 2023 as compared with June, 2023 and July, 2022 are as given in table 2A & 2B:

(i) Final Scheduled Volume:

Exchange	Period	Final Scheduled Volume (MU)			
		Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
IEX	July, 2023	2540.45	64.86	112.79	81.95
	June, 2023	2675.25	56.33	118.06	89.18
	% Change (Month over Month)	-5.04	15.14	-4.46	-8.11
	July, 2022	2130.98	53.64	89.17	68.74
	% Change (Year over Year)	19.22	20.92	26.49	19.22
PXIL	July, 2023	-	-	-	-
	June, 2023	-	-	-	-
	% Change (Month over Month)	NA	NA	NA	NA
	July, 2022	10.73	0.40	2.69	1.53
	% Change (Year over Year)	NA	NA	NA	NA
HPX	July, 2023	-	-	-	-
	June, 2023	-	-	-	-
	% Change (Month over Month)	NA	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table-2A

(ii) Daily Avg. Market Clearing Price (MCP) and Area Clearing Price (ACP):

Exchange	Period	Prices (₹/kWh)				
		Daily MCP (₹/kWh)		ACP (₹/kWh)		Monthly Avg. MCP (₹/kWh)
		Minimum	Maximum	Minimum	Maximum	Average
IEX	July, 2023	2.71	6.65	0.49	10.00	4.55
	June, 2023	2.25	7.42	0.98	10.00	4.86
	% Change (Month over Month)	20.44	-10.38	-50.00	0.00	-6.38
	July, 2022	2.87	7.11	0.55	12.00	4.88

Exchange	Period	Prices (₹/kWh)				
		Daily MCP (₹/kWh)		ACP (₹/kWh)		Monthly Avg. MCP (₹/kWh)
		Minimum	Maximum	Minimum	Maximum	Average
	% Change (Year over Year)	-5.57	-6.47	-10.91	-16.67	-6.76
PXIL	July, 2023	-	-	-	-	-
	June, 2023	-	-	-	-	-
	% Change (Month over Month)	NA	NA	NA	NA	NA
	July, 2022	11.90	12.00	11.90	12.00	11.99
	% Change (Year over Year)	NA	NA	NA	NA	NA
HPX	July, 2023	-	-	-	-	-
	June, 2023	-	-	-	-	-
	% Change (Month over Month)	NA	NA	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table-2B

3. Green Day Ahead Market (GDAM):

The volume of electricity transacted in GDAM **212.15 MU** (i.e. **212.15 MU** in IEX only) at an average MCP of **₹ 4.31/kWh** and no transaction took place in PXIL & HPX in GDAM. The Final Scheduled Volume (FSV), Daily Avg. Market Clearing Prices (MCP), Area Clearing Prices (ACP), Real Time Curtailment and details of Transmission Congestion under these 3 segments in Green Day Ahead Market during the month of July, 2023 and its comparison with June, 2023 and July, 2022 are as given in Table 3A and 3B:

i) Final Scheduled Volume :

Exchange	Segment	Period	Final Scheduled Volume (MU)			
			Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
IEX	Solar	July, 2023	67.68	0.80	4.73	2.18
		June, 2023	45.47	0.60	6.35	1.52
		% Change (Month over Month)	48.85	33.33	-25.51	43.42
		July, 2022	251.00	3.69	18.11	8.10
		%Change (Year over Year)	-73.04	-78.32	-73.88	-73.09
	Non Solar	July, 2023	128.10	2.47	6.17	4.13
		June, 2023	110.55	1.90	5.11	3.69
		% Change (Month over Month)	15.88	30.00	20.74	11.92
		July, 2022	195.43	2.95	16.62	6.30
		%Change (Year over Year)	-34.45	-16.27	-62.88	-34.44
	Hydro	July, 2023	16.37	0.16	1.13	0.53
		June, 2023	11.34	0.08	0.99	0.38
		% Change (Month over Month)	44.36	100.00	14.14	39.47
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
PXIL	Solar, Non Solar and Hydro	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		% Change (Month over Month)	NA	NA	NA	NA
HPX	Solar, Non Solar and Hydro	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		% Change (Month over Month)	NA	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table-3A

ii) Daily Avg. Market Clearing Price (MCP) and Area Clearing Price (ACP):

Exchange	Segment	Period	Prices (₹/kWh)				
			Daily MCP (₹/kWh)		ACP (₹/kWh)		Monthly Avg. MCP (₹/kWh)
			Minimum	Maximum	Minimum	Maximum	Average
IEX	Solar and Non Solar	July, 2023	3.01	5.39	1.83	10.00	4.31
		June, 2023	2.73	6.46	1.84	10.00	4.95
		% Change (Month over Month)	10.26	-16.56	-0.54	0.00	-12.93
		July, 2022	3.76	7.61	2.80	12.00	4.63
		% Change (Year over Year)	-19.95	-29.17	-34.64	-16.67	-6.91
PXIL	Solar, Non Solar and Hydro	July, 2023	-	-	-	-	-
		June, 2023	-	-	-	-	-
		% Change (Month over Month)	NA	NA	NA	NA	NA
HPX	Solar, Non Solar and Hydro	July, 2023	-	-	-	-	-
		June, 2023	-	-	-	-	-
		% Change (Month over Month)	NA	NA	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table-3B

3.1 There was no transmission congestion in the power exchanges in Green Day Ahead Market during the month of July, 2023 and June, 2023. Whereas, in IEX there was transmission congestion of **0.69 MU** during July, 2022.

3.2 There was no real time curtailment in the power exchanges in Green Day Ahead Market during the month of July, 2023, June, 2023 and July, 2022.

3.3 The **top 10 sellers** on the power exchanges in **Green Day Ahead Market (GDAM)** in the month of July, 2023 were **Andhra Pradesh, Maharashtra, Renew Surya Ravi Private Limited (solar), Karnataka, J&K, Ostro Kannada Power Private Limited, Singoli Bhagwati, WIND FIVE RENERGY LIMITED, Rajasthan** and **SBSR Power Cleantech Eleven Private Limited**, which constituted **85.73 %** of the market volume.

3.4 The **top 10 buyers** on the power exchanges in **Green Day Ahead Market (GDAM)** in the month of July, 2023 were **DVC, Maharashtra, Tamil Nadu, Uttar Pradesh, Gujarat, Karnataka, Railways, Kerala, Delhi** and **BHARAT ALUMINIUM COMPANY LTD (Bulk Consumer)**, which constituted **84.55 %** of the market volume.

4. Term Ahead Market (TAM)

- 4.1. The total volume of electricity transacted on the power exchanges in Term Ahead Market in July, 2023 on delivery date basis was **462.02 MU**, out of which **287.60 MU** (62.25 %) was transacted on IEX, **20.40 MU** (4.42 %) was transacted on PXIL and **154.02 MU** (33.34 %) was transacted on HPX.
- 4.2. The total volume of electricity transacted on the power exchanges in Term Ahead Market in June, 2023 on delivery date basis was **590.53 MU**, out of which **322.49 MU** (54.61 %) was transacted on IEX, **172.80 MU** (29.26 %) was transacted on PXIL and **95.24 MU** (16.13 %) was transacted on HPX.
- 4.3. Similarly, the total volume of electricity transacted on the power exchanges in Term Ahead Market in July, 2022 on delivery date basis was **38.40 MU**, out of which, **38.40 MU** (100 %) was transacted on IEX and no transaction took place in PXIL & HPX.
- 4.4. With respect to the total energy supplied during the month of July, 2023 in the country, the volume of electricity traded on the power exchanges in TAM on delivery date basis represents **0.34 %** of the total energy supplied. The same was **0.42 %** in June, 2023 and **0.03 %** in July, 2022.
- 4.5. In the month of July, 2023, there was transmission congestion of **0.01 MU** in IEX. Whereas there was no transmission congestion in PXIL and HPX in TAM.
- 4.6. In the month July, 2023, there was real time curtailment of **6.98 MU** in TAM, Out of which **3.87 MU** happened under Anyday Single Sided contract in IEX. Whereas, in HPX, there was real time curtailment of **3.11 MU** under Anyday Single Sided contract. Whereas, in PXIL, there was no real time curtailment in TAM.
- 4.7. The comparison of total volume of electricity transacted and Average MCP in the power exchanges in Term Ahead Market (TAM) on delivery date basis during July, 2023 with June, 2023 and July, 2022 is given in Table – 4A & 4B:

(a) Final Scheduled Volume (MU), July, 2023 vis- a- vis June, 2023 and July, 2022

Exchange	Period	Final Scheduled Volume (MU)				
		Daily or Any Day	Weekly	Monthly	Anyday Single Side	Total
IEX	July, 2023	69.60	75.60	-	142.40	287.60
	June, 2023	75.26	-	-	247.23	322.49
	%Change (Month over Month)	-7.52	NA	NA	-42.40	-10.82
	July, 2022	4.80	33.60	-	-	38.40
	%Change (Year over Year)	1350.00	125.00	NA	NA	648.96
PXIL	July, 2023	-	-	-	20.40	20.40

	June, 2023	-	-	-	172.80	172.80
	%Change (Month over Month)	NA	NA	NA	-88.19	-88.19
	July, 2022	-	-	-	-	-
	%Change (Year over Year)	NA	NA	NA	NA	NA
HPX	July, 2023	-	-	-	154.02	154.02
	June, 2023	11.72	-	-	83.52	95.24
	%Change (Month over Month)	NA	NA	NA	84.41	61.72
	July, 2022	-	-	-	-	-
	%Change (Year over Year)	NA	NA	NA	NA	NA

- : No transaction took place

NA: Not Applicable

Table: 4A

(b) Average MCP, July, 2023 vis- a- vis June, 2023 and July, 2022

Exchange	Period	Average MCP (₹/kWh)			
		Daily or Any Day	Weekly	Monthly	Anyday Single Side
IEX	July, 2023	4.35	4.40	-	5.13
	June, 2023	6.29	-	-	6.52
	%Change (Month over Month)	-30.84	NA	NA	-21.32
	July, 2022	4.00	4.00	-	-
	%Change Year over Year)	8.75	10.00	NA	NA
PXIL	July, 2023	-	-	-	4.45
	June, 2023	-	-	-	5.80
	%Change (Month over Month)	NA	NA	NA	-23.28
	July, 2022	-	-	-	-
	%Change (Year over Year)	NA	NA	NA	NA
HPX	July, 2023	-	-	-	5.81
	June, 2023	6.80	-	-	6.22
	%Change (Month over Month)	NA	NA	NA	-6.59
	July, 2022	-	-	-	-
	%Change Year over Year)	NA	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table: 4B

5. Day Ahead Contingency & Intra Day (DAC & ID)

The total volume of electricity transacted in the IEX, PXIL & HPX in DAC & ID on delivery date basis was **1760.50 MU**.

The total volume of electricity transacted in DAC & ID in Day Ahead Contingency & Intra Day contracts during July, 2023 and its comparison with June, 2023 and July, 2022 on delivery date basis have been shown in Tables 5A to 5B.

a) Final Scheduled Volume (MU), July, 2023 vis- a- vis June, 2023 and July, 2022

Exchange	Period	Final Scheduled Volume (MU)		
		Day Ahead Contingency	Intra Day	Total
IEX	July, 2023	734.64	13.47	748.11
	June, 2023	776.15	18.98	795.13
	%Change (Month over Month)	-5.35	-29.03	-5.91
	July, 2022	399.94	1.47	401.41
	%Change (Year over Year)	83.69	816.33	86.37
PXIL	July, 2023	368.25	5.12	373.37
	June, 2023	568.59	20.27	588.86
	%Change (Month over Month)	-35.23	-74.74	-36.59
	July, 2022	527.14	4.75	531.89
	%Change (Year over Year)	-30.14	7.79	-29.80
HPX	July, 2023	634.27	4.75	639.02
	June, 2023	667.55	12.08	679.63
	%Change (Month over Month)	-4.99	-60.68	-5.98
	July, 2022	312.71	-	312.71
	%Change (Year over Year)	102.83	NA	104.35

- : No transaction took place

NA: Not Applicable

Table: 5A

b) Average MCP, July, 2023 vis- a- vis June, 2023 and July, 2022

Exchange	Period	Average MCP (₹/kWh)	
		Day Ahead Contingency	Intra Day
IEX	July, 2023	5.38	9.42
	June, 2023	6.16	9.76
	%Change (Month over Month)	-12.66	-3.48
	July, 2022	5.20	11.93
	%Change Year over Year)	3.46	-21.04

Exchange	Period	Average MCP (₹/kWh)	
		Day Ahead Contingency	Intra Day
PXIL	July, 2023	5.71	9.77
	June, 2023	6.77	9.41
	%Change (Month over Month)	-15.66	3.83
	July, 2022	5.98	11.65
	%Change (Year over Year)	-4.52	-16.14
HPX	July, 2023	5.47	9.26
	June, 2023	6.68	9.75
	%Change (Month over Month)	-18.11	-5.03
	July, 2022	6.02	-
	%Change Year over Year)	-9.14	NA

- : No transaction took place

NA: Not Applicable

Table: 5B

- In the month of July, 2023, there was transmission congestion of **2.41 MU** in IEX. Whereas, there was no transmission congestion in PXIL and HPX in DAC & ID.
- In the month July, 2023, there was real time curtailment of **15.93 MU** in DAC & ID, Out of which **5.13 MU** happened under Day Ahead Contingency contract in IEX, **2.00 MU** happened under Day Ahead Contingency contract in PXIL and **8.80 MU** happened under Day Ahead Contingency contract in HPX in DAC & ID.

6. Green Term Ahead Market (GTAM):

The total volume of electricity transacted in the IEX, PXIL & HPX in GTAM on delivery date basis was **5.93 MU** (5.93 MU in Non-Solar only).

The total volume of electricity transacted in GTAM in Daily/ Anyday, Weekly, Monthly and Anyday Single Side contracts during July, 2023 and its comparison with June, 2023 and July, 2022 on delivery date basis have been shown in Tables 6A to 6F.

6.1 Solar Energy Segment in GTAM

The Final Scheduled Volume and the Price of electricity transacted in GTAM (Solar) in Power Exchanges during July, 2023 and its comparison with June, 2023 and July, 2022 have been shown in Table 6A & 6B below.

(i) **Final Scheduled Volume:**

Exchange	Solar Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
IEX	Daily/Anyday	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change Month over Month)	NA	NA	NA	NA
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Weekly	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Monthly	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Anyday Single Side	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
PXIL	Daily/Anyday	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA

Exchange	Solar Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
	Weekly	%Change (Year over Year)	NA	NA	NA	NA
		July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Monthly	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Anyday Single Side	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
HPX	Daily/Anyday	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
	Weekly	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
	Monthly	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
	Anyday Single Side	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA

∴ No transaction took place

NA: Not Applicable

Table-6A

(ii) Daily Avg. Market Clearing Price (MCP):

Exchange	Solar Energy Contract	Period	Prices(₹/kWh)		
			Minimum	Maximum	Average
IEX	Daily/Anyday	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	-	-	-

Exchange	Solar Energy Contract	Period	Prices(₹/kWh)		
			Minimum	Maximum	Average
	Weekly	%Change (Year over Year)	NA	NA	NA
		July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Monthly	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Anyday Single Side	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
PXIL	Daily/Anyday	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Weekly	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Monthly	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Anyday Single Side	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
HPX	Daily/Anyday	July, 2023	-	-	-
		June, 2023	-	-	-

Exchange	Solar Energy Contract	Period	Prices(₹/kWh)		
			Minimum	Maximum	Average
		%Change (Month over Month)	NA	NA	NA
	Weekly	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
	Monthly	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
	Anyday Single Side	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table-6B

- In July, 2023, there was no transaction in GTAM (Solar) in IEX, PXIL & HPX.

6.2 Non-Solar Energy Segment in GTAM

The Final Scheduled Volume and the Price of electricity transacted in GTAM (Non-Solar) in Power Exchanges during July, 2023 and its comparison with June, 2023 and July, 2022 have been shown in Tables 6C & 6D below.

(i) Final Scheduled Volume:

Exchange	Non- Solar Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
IEX	Daily/Anyday	July, 2023	0.96	0.04	0.14	0.06
		June, 2023	5.27	0.12	0.21	0.18
		%Change (Month over Month)	-81.78	-66.67	-33.33	-66.67
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Weekly	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	0.40	0.06	0.06	0.06
		%Change (Year over Year)	NA	NA	NA	NA
	Monthly	July, 2023	3.72	0.12	0.12	0.12
		June, 2023	3.60	0.12	0.12	0.12
		%Change (Month over Month)	3.33	0.00	0.00	0.00
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Anyday Single Side	July, 2023	-	-	-	-
		June, 2023	28.08	1.08	1.08	1.08

Exchange	Non- Solar Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
PXIL	Daily/Anyday	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Weekly	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Monthly	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Anyday Single Side	July, 2023	-	-	-	-
		June, 2023	1.47	0.02	0.19	0.06
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
HPX	Daily/Anyday	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
	Weekly	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
	Monthly	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
	Anyday Single Side	July, 2023	1.25	0.21	0.21	0.21
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table - 6C

(ii) Daily Avg. Market Clearing Price (MCP):

Exchange	Non- Solar Energy Contract	Period	Prices(₹/kWh)		
			Minimum	Maximum	Average
IEX	Daily/Anyday	July, 2023	4.65	5.48	4.77
		June, 2023	5.27	6.50	5.43
		%Change (Month over Month)	-11.76	-15.69	-12.15
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Weekly	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	5.80	5.80	5.80
		%Change (Year over Year)	NA	NA	NA
	Monthly	July, 2023	6.80	6.80	6.80
		June, 2023	6.80	6.80	6.80
		%Change (Month over Month)	0.00	0.00	0.00
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Anyday Single Side	July, 2023	-	-	-
		June, 2023	6.50	6.50	6.50
		%Change (Month over Month)	NA	NA	NA
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
PXIL	Daily/Anyday	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Weekly	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Monthly	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Anyday Single Side	July, 2023	-	-	-
		June, 2023	6.45	6.45	6.45

Exchange	Non- Solar Energy Contract	Period	Prices(₹/kWh)		
			Minimum	Maximum	Average
HPX		%Change (Month over Month)	NA	NA	NA
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Daily/Anyday	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
	Weekly	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
	Monthly	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
	Anyday Single Side	July, 2023	5.99	5.99	5.99
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table - 6D

- In July, 2023, there was no transmission congestion in IEX and HPX. Whereas, there was no transaction in PXIL in GTAM (Non Solar).
- In July, 2023, there was no real time curtailment in IEX and HPX. Whereas, there was no transaction in PXIL in GTAM (Non Solar).

6.3 Hydro Energy Segment in GTAM

The Final Scheduled Volume and the Price of electricity transacted in GTAM (Hydro) in Power Exchanges during July, 2023 and its comparison with June, 2023 and July, 2022 have been shown in Tables 6E & 6F below.

(i) Final Scheduled Volume:

Exchange	Hydro Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
IEX	Daily/Anyday	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Weekly	July, 2023	-	-	-	-
		June, 2023	-	-	-	-

Exchange	Hydro Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Monthly	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Anyday Single Side	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
PXIL	Daily/Anyday	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Weekly	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Monthly	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Anyday Single Side	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
HPX	Daily/Anyday	July, 2023	-	-	-	-
		June, 2023	-	-	-	-

Exchange	Hydro Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
	Anyday Single Side	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA

∴ No transaction took place

NA: Not Applicable

Table: 6E

(ii) Daily Avg. Market Clearing Price (MCP):

Exchange	Hydro Energy Contract	Period	Prices(₹/kWh)		
			Minimum	Maximum	Average
IEX	Daily/Anyday	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
		July, 2023	-	-	-
	Weekly	June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
		July, 2023	-	-	-
	Monthly	June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
		July, 2023	-	-	-
	Anyday Single Side	June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
		July, 2023	-	-	-

Exchange	Hydro Energy Contract	Period	Prices(₹/kWh)		
			Minimum	Maximum	Average
PXIL	Daily/Anyday	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Weekly	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Monthly	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Anyday Single Side	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
HPX	Daily/Anyday	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
	Weekly	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
	Monthly	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
	Anyday Single Side	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table – 6F

- In July, 2023, there was no transaction in GTAM (Hydro) in IEX, PXIL & HPX.

7. Green Day Ahead Contingency & Intra Day (G-DAC & ID):

The total volume of electricity transacted in the IEX, PXIL & HPX in G-DAC & ID on delivery date basis was **147.27 MU** (**13.01 MU** in Solar, **121.40 MU** in Non-Solar and **12.86 MU** in Hydro), respectively.

The total volume of electricity transacted in G-DAC & ID in Day Ahead Contingency and Intra Day contracts during July, 2023 and its comparison with June, 2023 and July, 2022 on delivery date basis have been shown in Tables 7A to 7F.

7.1 Solar Energy Segment in G-DAC & ID

The Final Scheduled Volume and the Price of electricity transacted in G-DAC & ID (Solar) in Power Exchanges during July, 2023 and its comparison with June, 2023 and July, 2022 have been shown in Table 7A & 7B below.

(iii) Final Scheduled Volume:

Exchange	Solar Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
IEX	Day Ahead Contingency	July, 2023	5.57	0.14	0.83	0.43
		June, 2023	6.98	0.26	2.97	0.70
		%Change Month over Month)	-20.20	-46.15	-72.05	-38.57
		July, 2022	24.65	0.88	4.24	2.46
		%Change (Year over Year)	-77.40	-84.09	-80.42	-82.52
	Intra Day	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
PXIL	Day Ahead Contingency	July, 2023	0.91	0.29	0.32	0.30
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	11.91	0.29	3.25	1.19
		%Change (Year over Year)	-92.36	0.00	-90.15	-74.79
	Intra Day	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
HPX	Day Ahead Contingency	July, 2023	6.53	0.04	1.14	0.21
		June, 2023	17.67	0.03	3.16	0.61
		%Change (Month over Month)	-63.04	33.33	-63.92	-65.57

Exchange	Solar Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
	Intra Day	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table-7A

(iv) Daily Avg. Market Clearing Price (MCP):

Exchange	Solar Energy Contract	Period	Prices(₹/kWh)		
			Minimum	Maximum	Average
IEX	Day Ahead Contingency	July, 2023	2.14	3.42	3.10
		June, 2023	2.24	4.15	3.42
		%Change (Month over Month)	-4.46	-17.59	-9.36
		July, 2022	1.69	4.11	3.34
		%Change (Year over Year)	26.63	-16.79	-7.19
	Intra Day	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
PXIL	Day Ahead Contingency	July, 2023	1.79	3.24	2.54
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	1.94	4.37	3.55
		%Change (Year over Year)	-7.73	-25.86	-28.45
	Intra Day	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
HPX	Day Ahead Contingency	July, 2023	2.48	4.24	3.63
		June, 2023	2.87	5.27	3.83
		%Change (Month over Month)	-13.59	-19.54	-5.22
	Intra Day	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table-7B

- In July, 2023, there was no transmission congestion in G-DAC & ID (Solar) in IEX, PXIL & HPX.
- In July, 2023, there was no real time curtailment in G-DAC & ID (Solar) in IEX, PXIL & HPX.

7.2 Non-Solar Energy Segment in G-DAC & ID

The Final Scheduled Volume and the Price of electricity transacted in G-DAC & ID (Non-Solar) in Power Exchanges during July, 2023 and its comparison with June, 2023 and July, 2022 have been shown in Tables 7C & 7D below.

(iii) Final Scheduled Volume:

Exchange	Non- Solar Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
IEX	Day Ahead Contingency	July, 2023	39.45	0.20	6.55	1.27
		June, 2023	41.56	0.06	5.33	1.54
		%Change (Month over Month)	-5.08	233.33	22.89	-17.53
		July, 2022	49.41	0.12	4.02	4.59
		%Change (Year over Year)	-20.16	66.67	62.94	-72.33
	Intra Day	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
PXIL	Day Ahead Contingency	July, 2023	13.95	0.02	3.13	0.82
		June, 2023	41.65	0.41	8.57	1.98
		%Change (Month over Month)	-66.51	-95.12	-63.48	-58.59
		July, 2022	39.70	0.07	3.22	1.28
		%Change (Year over Year)	-64.86	-71.43	-2.80	-35.94
	Intra Day	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
HPX	Day Ahead Contingency	July, 2023	68.00	0.07	5.39	2.19
		June, 2023	29.17	0.08	8.00	1.46
		%Change (Month over Month)	133.12	-12.50	-32.63	50.00
	Intra Day	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table - 7C

(iv) Daily Avg. Market Clearing Price (MCP):

Exchange	Non- Solar Energy Contract	Period	Prices(₹/kWh)		
			Minimum	Maximum	Average
IEX	Day Ahead Contingency	July, 2023	3.57	5.86	5.21
		June, 2023	3.22	6.75	5.82
		%Change (Month over Month)	10.87	-13.19	-10.48
		July, 2022	3.16	8.98	5.89
		%Change (Year over Year)	12.97	-34.74	-11.54
	Intra Day	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
PXIL	Day Ahead Contingency	July, 2023	3.67	8.61	4.76
		June, 2023	3.26	9.88	6.33
		%Change (Month over Month)	12.58	-12.85	-24.80
		July, 2022	3.55	11.83	6.64
		%Change (Year over Year)	3.38	-27.22	-28.31
	Intra Day	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
HPX	Day Ahead Contingency	July, 2023	3.30	6.77	4.92
		June, 2023	3.14	7.96	5.74
		%Change (Month over Month)	5.10	-14.95	-14.29
	Intra Day	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table - 7D

- In July, 2023, there was transmission congestion of **0.07 MU** in IEX under Day Ahead Contingency contract. Whereas, there was no transmission congestion in PXIL & HPX in G-DAC & ID (Non Solar).
- In July, 2023, there was no real time curtailment in G-DAC & ID (Non Solar) in IEX, PXIL & HPX.

6.3 Hydro Energy Segment in G-DAC & ID

The Final Scheduled Volume and the Price of electricity transacted in G-DAC & ID (Hydro) in Power Exchanges during July, 2023 and its comparison with June, 2023 and July, 2022 have been shown in Tables 7E & 7F below.

(i) Final Scheduled Volume:

Exchange	Hydro Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
IEX	Day Ahead Contingency	July, 2023	12.76	0.40	2.40	1.28
		June, 2023	20.48	0.45	2.17	0.98
		%Change (Month over Month)	-37.70	-11.11	10.60	30.61
		July, 2022	66.06	0.18	3.23	2.20
		%Change (Year over Year)	-80.68	122.22	-25.70	-41.82
	Intra Day	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	1.75	0.16	0.74	0.44
		%Change (Year over Year)	NA	NA	NA	NA
PXIL	Day Ahead Contingency	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Intra Day	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		July, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
HPX	Day Ahead Contingency	July, 2023	0.10	0.10	0.10	0.10
		June, 2023	5.23	0.44	0.97	0.75
		%Change (Month over Month)	-98.09	-77.27	-89.69	-86.67
	Intra Day	July, 2023	-	-	-	-
		June, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table: 7E

(ii) Daily Avg. Market Clearing Price (MCP):

Exchange	Hydro Energy Contract	Period	Prices(₹/kWh)		
			Minimum	Maximum	Average
IEX	Day Ahead Contingency	July, 2023	2.44	6.31	4.06
		June, 2023	3.28	8.60	5.98
		%Change (Month over Month)	-25.61	-26.63	-32.11
		July, 2022	2.99	7.23	5.11
		%Change (Year over Year)	-18.39	-12.72	-20.55
	Intra Day	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	8.49	12.00	10.77
		%Change (Year over Year)	NA	NA	NA
PXIL	Day Ahead Contingency	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Intra Day	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		July, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
HPX	Day Ahead Contingency	July, 2023	4.18	4.18	4.18
		June, 2023	4.48	8.71	6.74
		%Change (Month over Month)	-6.70	-52.01	-37.98
	Intra Day	July, 2023	-	-	-
		June, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table – 7F

- In July, 2023, there was no transmission congestion in G-DAC & ID (Hydro) in IEX, PXIL and HPX.
- In July, 2023, there was no real time curtailment in G-DAC & ID (Hydro) in IEX, PXIL and HPX.

8. Bilateral Transactions:

The total volume of electricity transacted through **Bilateral transactions** in the month of July, 2023 was **10,698.37 MU**. The total buy volume of electricity transacted in bilateral market through direct transactions and trader in the month of July, 2023 were **4,141.25 MU** and **6,557.12 MU** respectively. The details of Bilateral transactions of Electricity during July, 2023 is shown in Table Below:

July, 2023	Direct	Traders	Total Bilateral Transaction (MU)
Total	4,141.25	6,557.12	10,698.37
Minimum	0.60	0.45	-
Maximum	1,312.97	1,342.23	-

Table -8A

The region-wise maximum/ minimum volume of electricity transacted bilaterally during July, 2023 are given in table below:

(i) **Region-wise Volume:**

Region-wise Volume (MU)	ER		WR		NR		SR		NER	
	Direct	Trader	Direct	Trader	Direct	Trader	Direct	Trader	Direct	Trader
Total	357.16	550.11	575.90	1108.88	2692.92	3888.47	515.28	829.19	-	180.47
Minimum	0.60	20.40	35.89	1.87	2.76	13.70	0.91	0.45	-	1.05
Maximum	144.01	229.10	339.79	419.11	1312.97	1342.23	260.40	411.93	-	179.42

Table-8B

8.1. The top 5 buyers on bilateral transaction through direct transactions in the month of July, 2023 were **Punjab, Uttar Pradesh, Haryana, Maharashtra** and **Andhra Pradesh**, which constituted **74.48 %** of the market volume. Whereas **top 5 buyers** on bilateral transaction through traders in the month of July, 2023 were **Haryana, Delhi, Punjab, Uttar Pradesh** and **Maharashtra**, which constituted **62.79 %** of the market volume. [Annexure III]

8.2. The top 5 sellers on bilateral transaction through direct transactions in the month of July, 2023 were **Karnataka, MP, Rajasthan, J & K** and **NTPC Stations SR**, which constituted **52.68 %** of the market volume. Whereas **top 5 sellers** on bilateral transaction through traders in the month of July, 2023 were **Himachal Pradesh, TEESTA HEP, Andhra Pradesh, JINDAL STAGE-II** and **ESSAR POWER**, which constituted **40.24 %** of the market volume. [Annexure III]

8.3. Deviation Volume -The volume of Deviation observed in the month of July, 2023 in import and export were **2,289.07 MU** and **2,399.45 MU** respectively. The total volume of Deviation observed in the month of July, 2023 can be taken as **2,344.26 MU**.

8.4. A comparison of volume of electricity transacted through the Power Exchanges together in DAM, GDAM, RTM, TAM, DAC & ID, GTAM and G-DAC & ID (on delivery date basis) with Bilateral transactions and Deviation in the month of July, 2023 is shown in **Figure 1:**

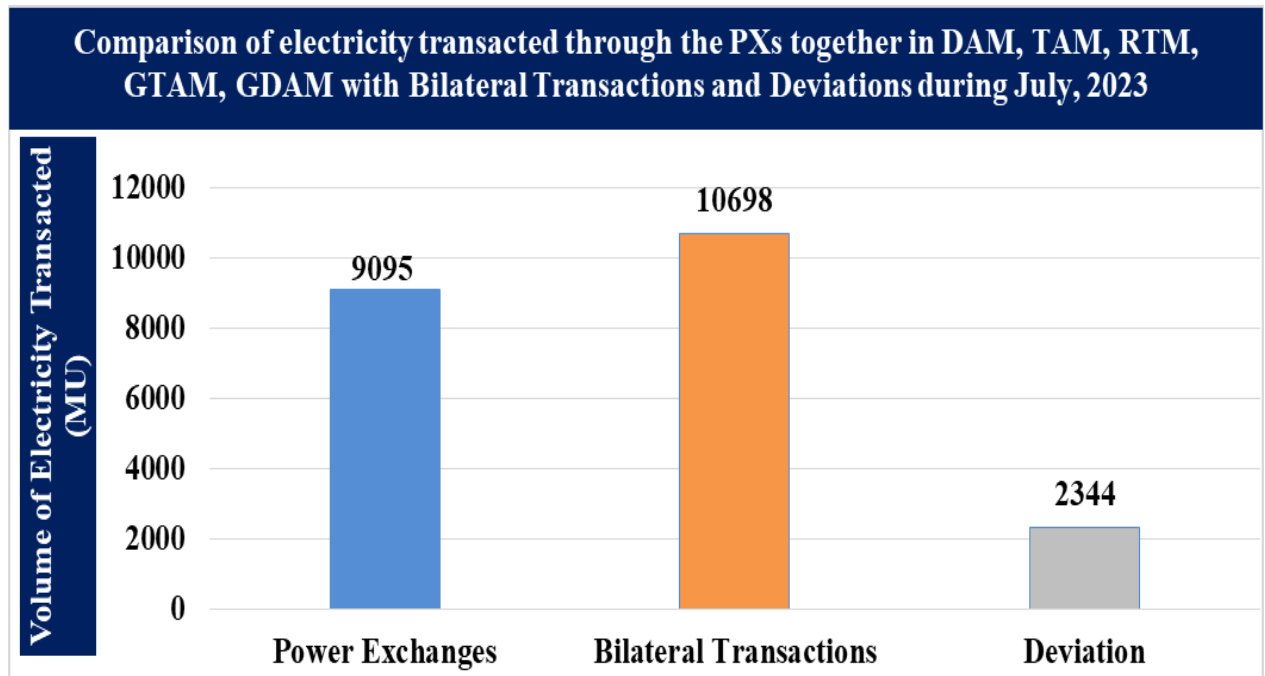
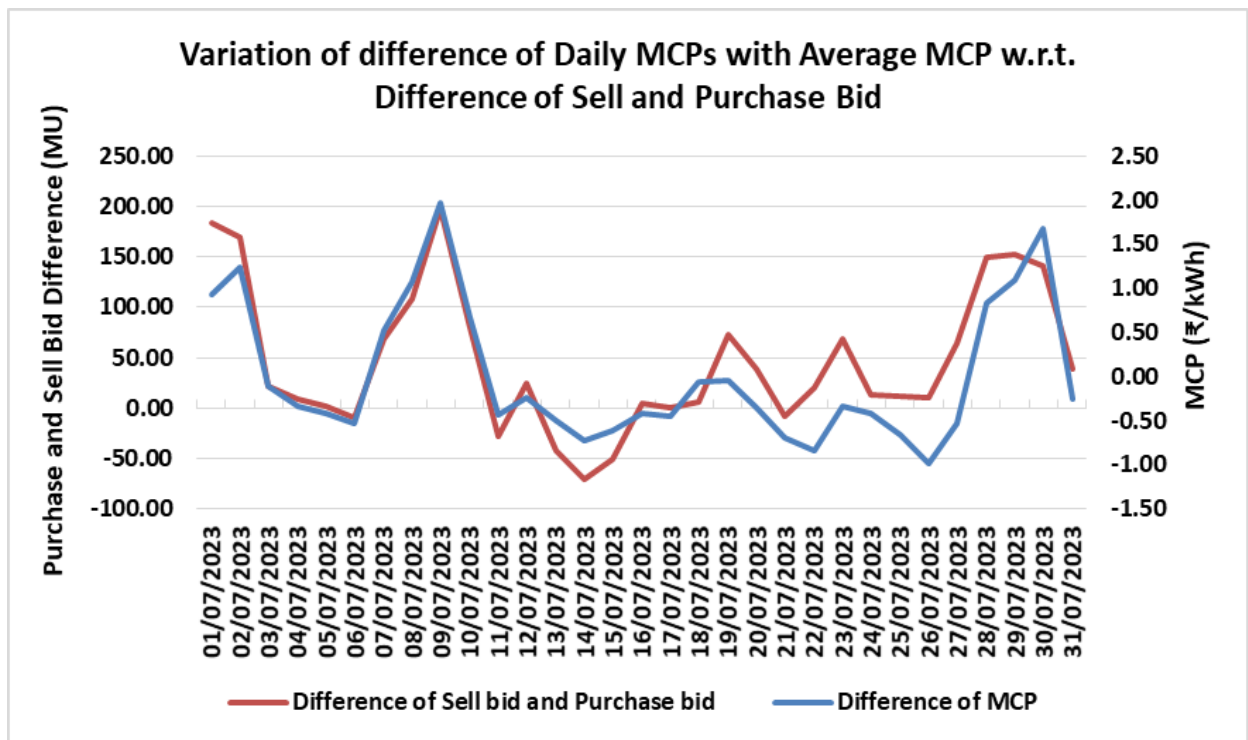


Figure -1

9. Analysis of movement of prices observed in DAM during July, 2023

A regression analysis has been carried out on the Day Ahead Market data taken from IEX website. Also, data was plotted in various graphs to observe patterns for each day of the July, 2023 month. The observations made are as under:

- 9.1. In order to find out the determinants which are responsible for the Daily Avg. MCP, a regression analysis has been carried out where the Daily Avg. MCP is the dependent variable and the independent variables are peak demand, total purchase bid, total sell bid, coal generation, hydro generation, wind generation and solar generation.
- 9.2. A double log function was used so that elasticity of Daily Avg. MCP could be read off from the coefficients of independent variables. The regression analysis revealed that the most significant variable was the Peak Demand. Further, the regression analysis revealed that the elasticity of the Daily Avg. MCP with respect to Peak Demand was **4.16** in the month of July, 2023.
- 9.3. The variation of difference of Daily Avg. MCPs with Average MCP w.r.t Difference of Sell and Purchase bid is Shown below:



- 9.4. The same relationship is visible from the analysis carried out from the plot in **Figure - 2**

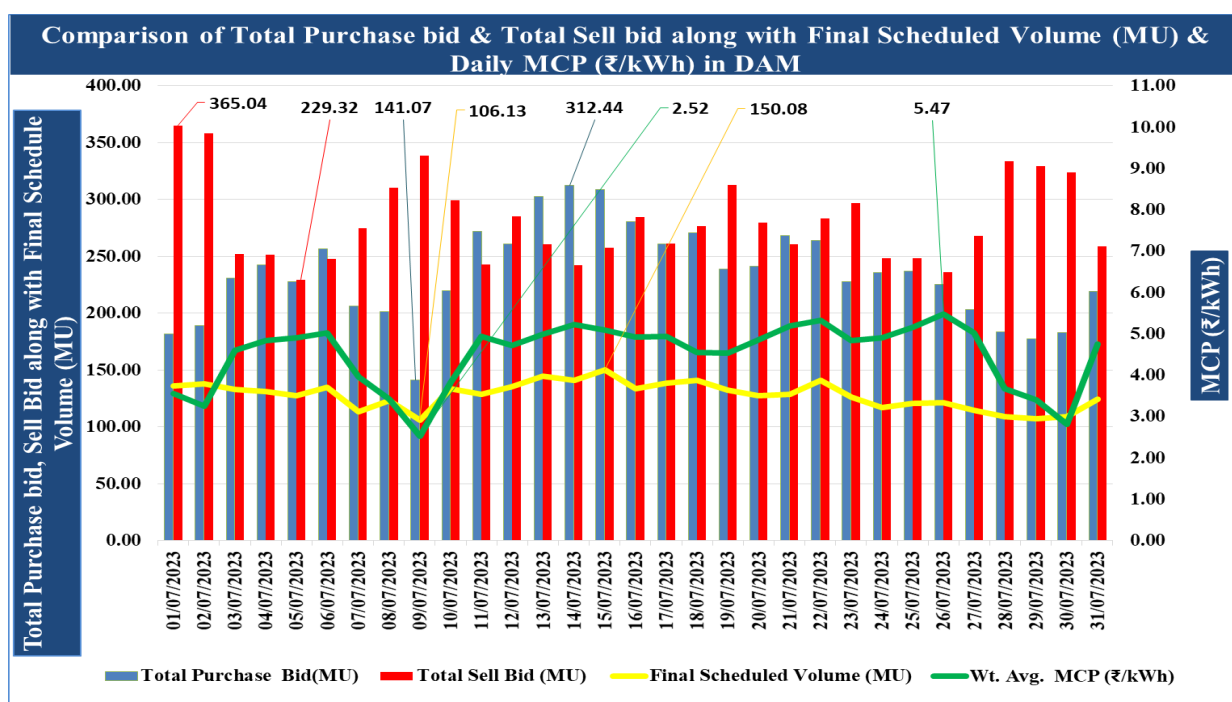


Figure – 2

9.5. Invariably, the Final Scheduled Volume (MU) and the Daily Avg. MCP (₹/kWh) showed decreasing trend on Sundays and increasing trend on Mondays as the demand of electricity in the country was less on Sundays as compared to other days of week. However, during the month of July, 2023, it is observed that on first Sunday (02nd July, 2023), FSV showed increasing trend in comparison to first Saturday (01st July, 2023), on fourth Monday (24th July, 2023), FSV showed decreasing trend in comparison to fourth Sunday (23th July, 2023). The detailed analysis on this is given at **Appendix-I**.

9.6. A comparison of maximum, minimum, daily, evening time MCP is shown in **Figure-3**. The same are also tabulated in **Annexure-I**

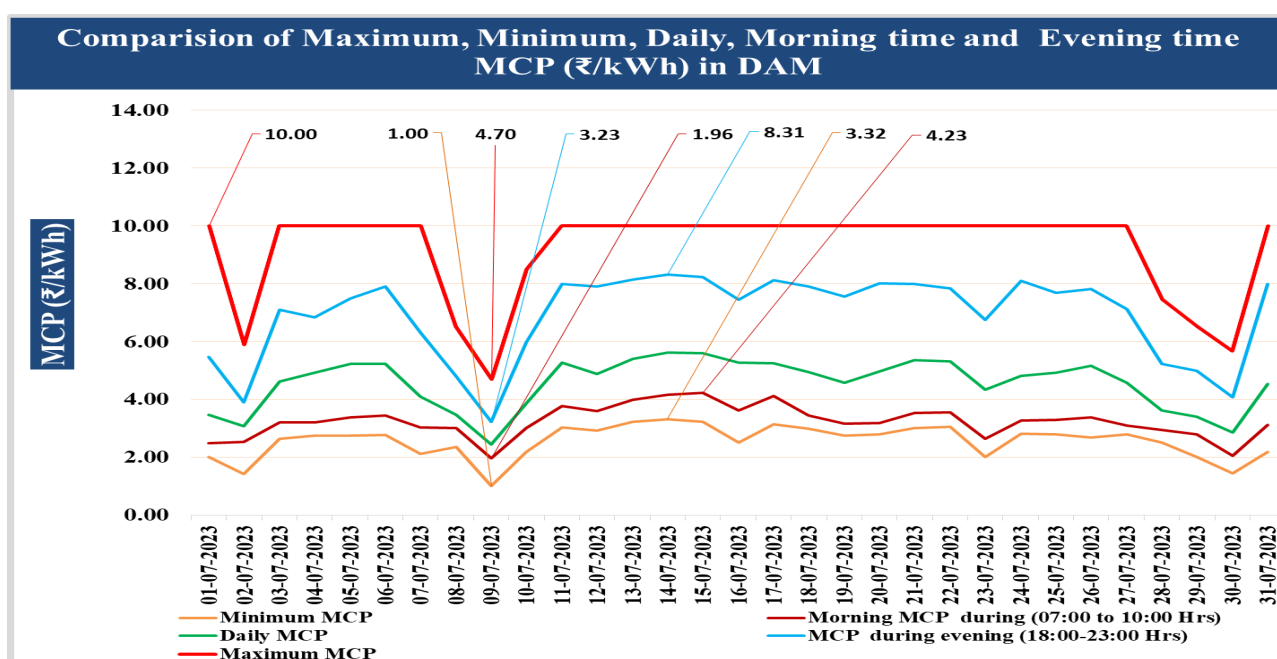


Figure-3

9.7. The Market Clearing Price duration curves for time block wise MCP for the month of July, 2023 is shown in **Figure 4**, whereas the time block wise MCP duration curve for the period 1st April, 2023 to 31st July, 2023 is shown in **Figure 5**.

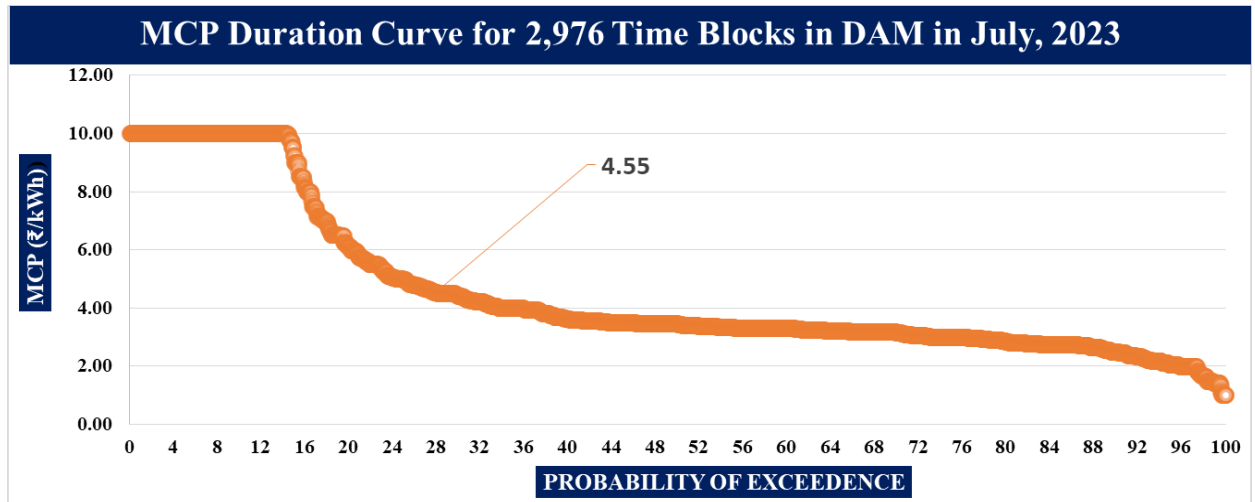


Figure – 4

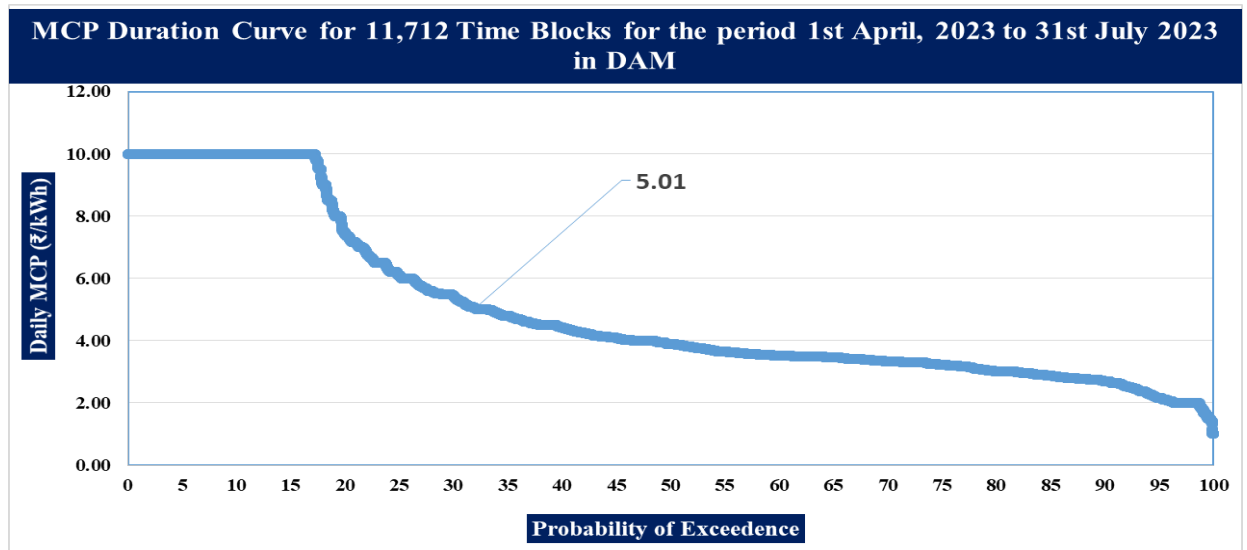


Figure-5

9.8. It can be seen in figure 4 above that in the MCP duration curve of July, 2023, for 28.00 % of the time MCP was above average MCP of the month (i.e. ₹ 4.55/kWh) and almost 72.00 % of the time MCP was below the average MCP of the month. Similarly, it can be seen in the MCP duration curve from 1st April, 2023 to 31st July, 2023 (figure-5), that for 35.00 % of the time the MCP was above the average MCP for the period (i.e. ₹ 5.01/kWh) and for 65.00 % of the time the Daily Avg. MCP was below the average MCP for the period.

9.9. The Purchase Bids and the MCP discovered in each of the 15-minute time block during the month almost followed the same trend [Annexure V]. This is also corroborated with the outcome of regression analysis mentioned at para 7.1 and 7.2 above.

- 9.10.** In July, 2023, the maximum FSV occurred mostly during the **time period 07-08 Hrs** (on 13 no. of days). Whereas, the maximum MCP occurred mostly during the **time period 19-21 Hrs** (on 13 no. of days). Similarly, the minimum FSV occurred mostly during the **time period 04-06 Hrs** (on 15 no. of days). Whereas, the minimum MCP occurred mostly during the **time period 13-14 Hrs** (on 12 no. of days). **[Annexure VI]**
- 9.11.** In the month of July, 2023, there was no congestion in IEX and no transaction of electricity took place in PXIL & HPX during July, 2023. Further, in the month of June, 2023, there was congestion of **0.64 MU** in IEX & PXIL and no transaction of electricity took place in HPX. Further, in the month of July, 2022, there was no congestion of **4.45 MU** in IEX & no congestion in PXIL and HPX.
- 9.12.** In the month of July, 2023, there was **no** real time curtailment in IEX and no transaction of electricity took place PXIL & HPX. Further, in the month of June, 2023, there was **no** real time curtailment in IEX & PXIL and no transaction of electricity took place HPX. Further in the month of July, 2022, there was **no** real time curtailment in IEX, PXIL & HPX.
- 9.13.** The **top 10 sellers** on the power exchanges in **Day Ahead Market (DAM)** in the month of July, 2023 were **Uttar Pradesh, Haryana, NVVN (SNA) – NEA, Himachal Pradesh, Sikkim Urja Limited, Jaypee Nigrie, Chhattisgarh, Bihar, Delhi** and **Madhya Pradesh**, which constituted **53.45 %** of the market volume. **[Annexure VII]**.
- 9.14.** The **top 10 purchasers** on the power exchanges in **Day Ahead Market (DAM)** in the month of July, 2023 were **West Bengal, Gujarat, Telangana, Rajasthan, Uttar Pradesh, Maharashtra, Andhra Pradesh, Tamil Nadu, Kerala** and **Daman & Diu - Dadra & Nagar Haveli**, which constituted **85.54 %** of the market volume. **[Annexure VII]**
- 9.15.** The total volume of electricity purchased by Discoms/Licensees in DAM in the month of July, 2023 was **3,928.42 MU**, which constituted **99.05 %** of total volume of electricity purchased on the power exchanges.
- 9.16.** Similarly, the total volume of electricity sold by Discoms/Licensees in DAM in the month of July, 2023 was **2,235.72 MU**, which constituted **56.37 %** of total volume of electricity sold on the power exchanges.

10. Analysis of movement of prices observed in Real Time Market (RTM) transactions in July, 2023

10.1. Similar to the regression analysis carried out for Day Ahead Market, the regression analysis for Real Time Market was also done. The regression analysis revealed that the significant variable was the Peak Demand. Further, the regression analysis revealed that the elasticity of the Daily Avg. MCP with respect to Peak Demand was **4.06** in the month of July, 2023.

10.2. The Purchase Bids and the MCP discovered in each of the 15-minute time block during the month almost followed the same trend [Annexure IX]. This is also corroborated with the outcome of regression analysis mentioned at **para 8.1 above**.

10.3. The Total Purchase Bid, Total Sell Bid, Daily Avg. MCP and FSV are shown in Figure-6 below:

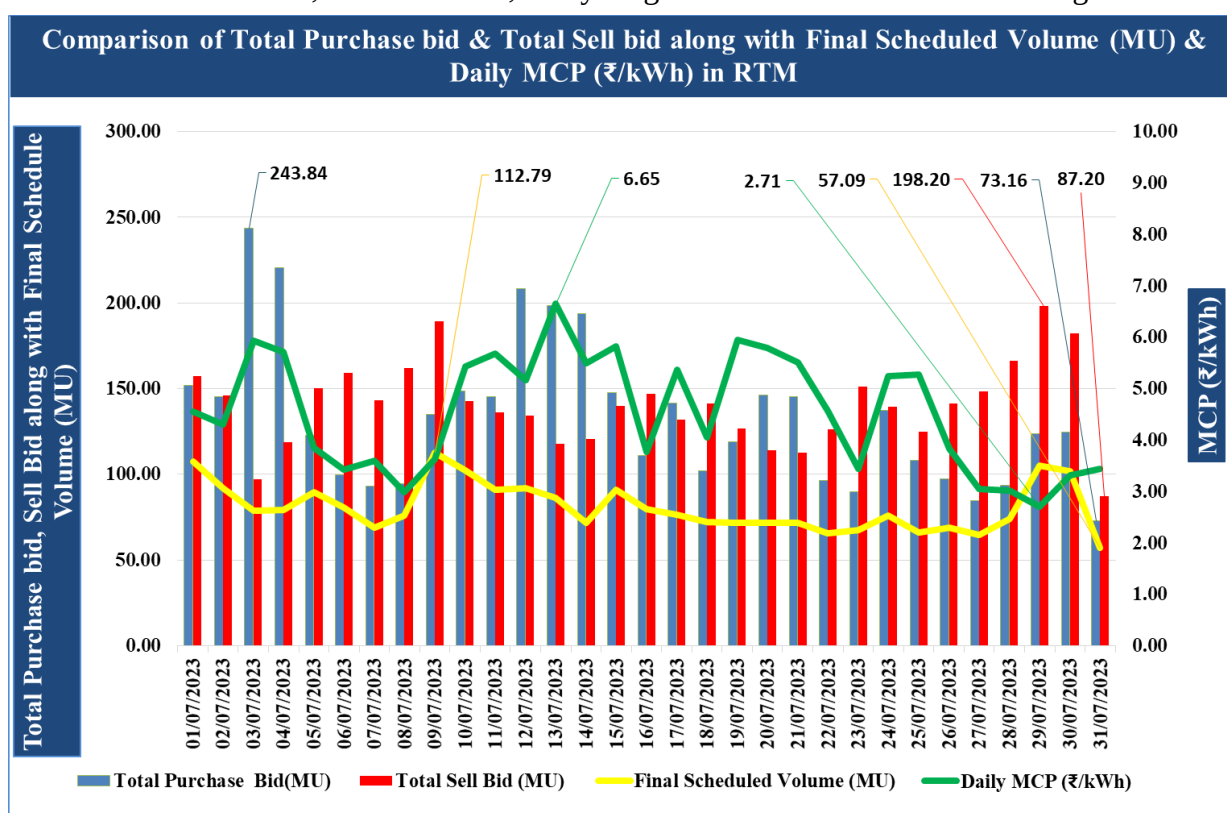


Figure-6

10.4. A comparison of maximum, minimum, daily, evening time MCP is shown in **Figure-7**. The same are also tabulated in **Annexure-VIII**.

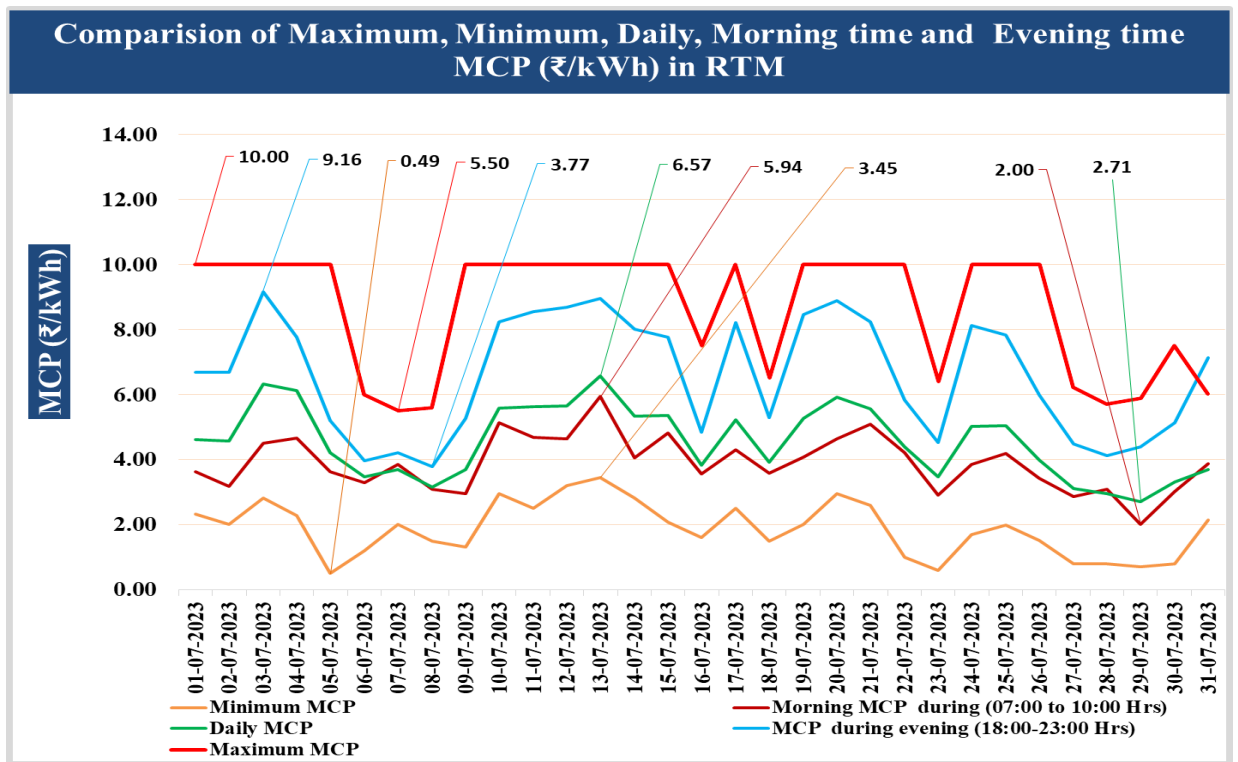


Figure-7

10.5. The Market Clearing Price duration curves for time block wise MCP for the month of July, 2023 is shown in **Figure 8**, whereas the day wise MCP duration curve for the period 1st April, 2023 to 31st July, 2023 is shown in **Figure 9**.

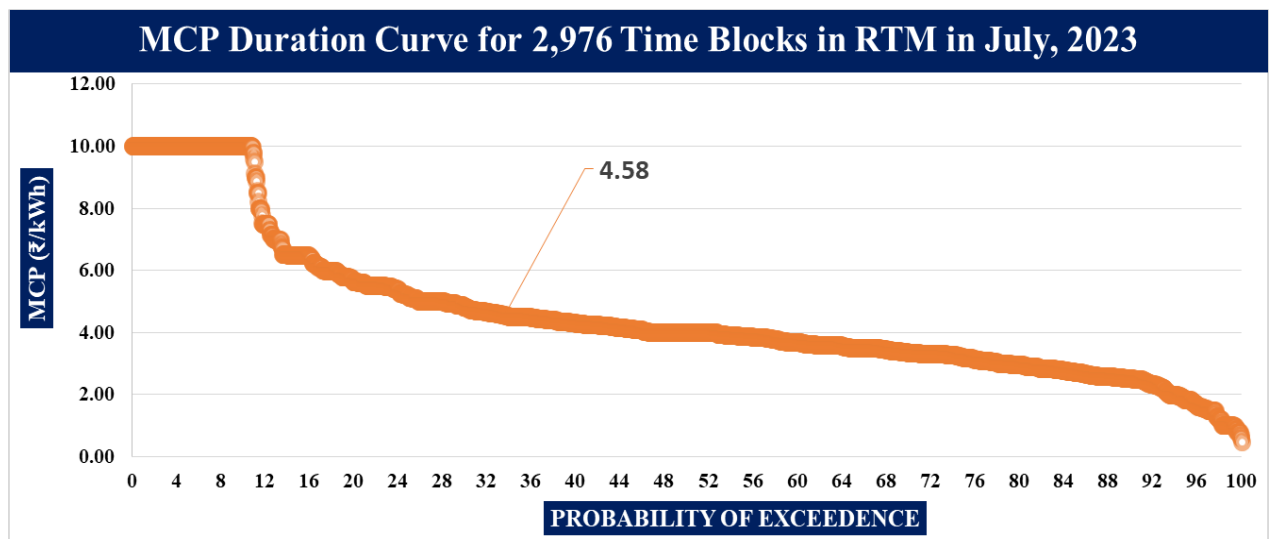


Figure-8

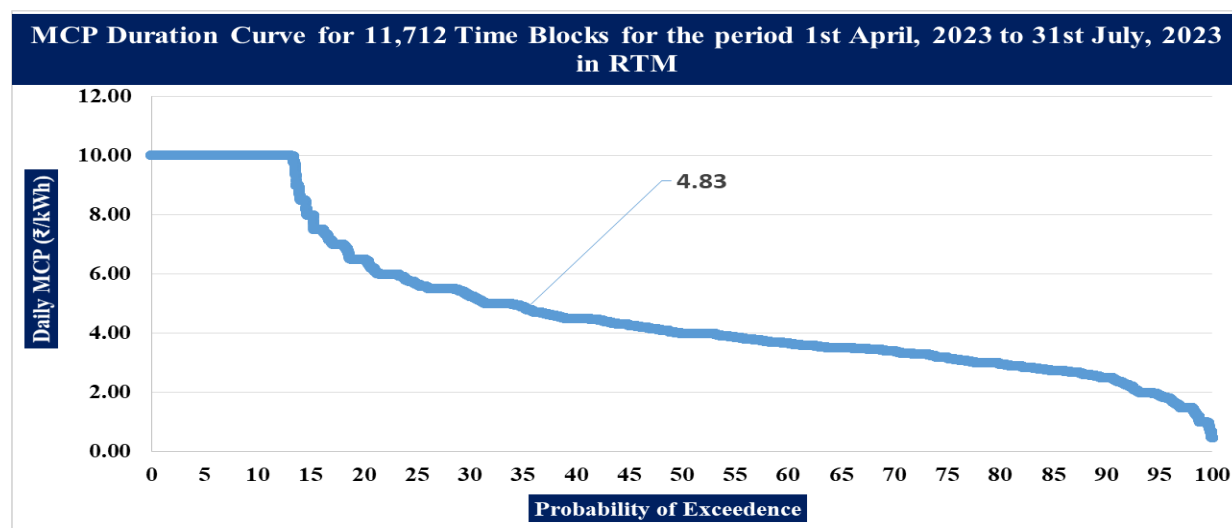


Figure-9

- 10.6.** It can be seen in figure 8 above that in the MCP duration curve of July, 2023, for 33.00 % of the time the MCP was above the average MCP of the month (i.e. ₹ 4.58/kWh) and for 67.00 % of the time the MCP was below the average MCP of the month. Similarly, it can be seen in the cumulative MCP duration curve from 1st April, 2023 to 31st July, 2023 (figure 9) that, for 36.00 % of the time the Daily Avg. MCP was above the average MCP for the period (i.e. ₹ 4.83/kWh) and for 64.00 % of the time the Daily Avg. MCP was below the average MCP for the period.
- 10.7.** In July, 2023, the maximum FSV occurred mostly during the **time period 21-24 Hrs** (on 09 no. of days). Whereas, the maximum MCP also occurred mostly during the **time period 19-20 Hrs** (on 13 no. of days). Similarly, the minimum FSV occurred mostly during the **time period 18-20 Hrs** (on 09 no. of days). Whereas, the minimum MCP occurred mostly during the **time period 13-14 Hrs** (on 18 no. of days).[Annexure X]
- 10.8.** There was **no** real time curtailment in IEX in Real Time Market (RTM) during July, 2023 and no transaction happened in PXIL and HPX. Further, in June, 2023 **no** real time curtailment occurred in IEX, whereas, no transaction happened in PXIL & HPX. Similarly, in July, 2022, there was no real time curtailment in IEX and no transaction happened in PXIL& HPX.
- 10.9.** In the month of July, 2023 there was congestion of **0.78 MU** in IEX and no transaction happened in PXIL & HPX. Further, in the month of June, 2023, there was congestion of **0.70 MU** in IEX and no transaction happened in PXIL & HPX. Similarly, in the month of July, 2022, there was **0.04 MU** congestion in the transmission system in IEX and there was no congestion in PXIL & no transaction took place in HPX.

10.10. The **top 10 sellers** on the power exchanges in **Real Time Market (RTM)** in the month of July, 2023 were **Madhya Pradesh, J&K, Bihar, Punjab, Himachal Pradesh, Tamil Nadu, Odisha, Haryana, NTPC BARH1 Unit 2 and Delhi**, which constituted **57.88 %** of the market volume. [Annexure XI]

10.11. The **top 10 buyers** on the power exchanges in **Telangana, West Bengal, Rajasthan, Andhra Pradesh, Kerala, Uttar Pradesh, Maharashtra, Punjab, Odisha and Uttarakhand**, which constituted **75.35 %** of the market volume. [Annexure XI]

10.12. The total volume of electricity purchased by Discoms/Licensees in RTM in the month of July, 2023 was **2,491.30 MU**, which constituted **98.07 %** of total volume of electricity purchased on the power exchanges.

10.13. Similarly, the total volume of electricity sold by Discoms/Licensees in RTM in the month of July, 2023 was **2,020.36 MU**, which constituted **79.53 %** of total volume of electricity sold on the power exchanges.

-
- Source DAM, GDAM, TAM, GTAM and RTM data: IEX, PXIL and HPX
 - Source Entity wise sale and purchase on PXs data: NLDC
 - Source Total Energy supplied: CEA
 - Source Generation & other data for Regression: NLDC and IEX

Final Scheduled Volume, Average MCP and Real-Time Curtailment in Day Ahead Market (DAM) for the months of April, 2023 to July, 2023 of IEX and PXIL							
Quarter	Months	Final Scheduled Volume (MU)		Market Clearing Price (₹/kWh)		Real Time Curtailment (MU)	
		IEX	PXIL	IEX	PXIL	IEX	PXIL
Quarter -I	April, 2023	4,408.93	0	5.08	0	0	0
	May, 2023	3,999.76	1.56	4.77	6.94	0	1.55
	June, 2023	4,123.34	0.03	5.16	10.00	0	0
Total Quarter -I	April - June, 2023	12,532.03	1.59	5.01	7.00	0	1.55
Quarter -II	July, 2023	3,966.20	0	4.52	0	0	0
	August, 2023						
	September, 2023						
Total Quarter -II	July - September, 2023	3,966.20	0	4.52	0	0	0
Total April, 2023 – July, 2023		16,498.23	1.59	4.89	7.00	0	1.55

Annexure-II

Final Scheduled Volume in Term Ahead Market (TAM) for the months of April, 2023 to July, 2023 of IEX, PXIL and HPX (Delivery date basis)					
Quarter	Months	Final Scheduled Volume (MU)			
		IEX	PXIL	HPX	Total
Quarter -I	April, 2023	317.91	111.30	321.83	751.04
	May, 2023	607.72	133.80	198.75	940.27
	June, 2023	322.49	172.80	95.24	590.53
Total Quarter – I	April - June, 2023	1,248.12	417.90	615.82	2,281.84
Quarter -II	July, 2023	287.60	20.40	154.02	462.02
	August, 2023				
	September, 2023				
Total Quarter – II	July - September , 2023	287.60	20.40	154.02	462.02
Total April, 2023 – July, 2023		1,535.72	438.30	769.84	2,743.86

Top Five Entities (Buyers and Sellers) in Bilateral transactions in the month of July, 2023

(i) Top five Buyers in Bilateral transactions

Entity Name	Direct		Entity Name	Through Traders	
	(MU)	Percent		(MU)	Percent
Punjab	1312.97	31.70%	Haryana	1342.23	20.47%
Uttar Pradesh	824.03	19.90%	Delhi	1091.04	16.64%
Haryana	347.39	8.39%	Punjab	818.44	12.48%
Maharashtra	339.79	8.20%	Uttar Pradesh	446.65	6.81%
Andhra Pradesh	260.40	6.29%	Maharashtra	419.11	6.39%
Total Volume	3,084.57	74.48%	Total Volume	4,117.48	62.79%
Total Volume in Bilateral	4,141.25		Total Volume in Bilateral	6,557.12	

(ii) Top five Sellers in Bilateral transactions

Entity Name	Direct		Entity Name	Through Traders	
	(MU)	Percent		(MU)	Percent
Karnataka	818.20	19.76%	Himachal Pradesh	736.43	11.23%
MP	588.77	14.22%	TEESTA HEP	571.38	8.71%
Rajasthan	412.88	9.97%	Andhra Pradesh	497.77	7.59%
J & K	193.85	4.68%	JINDAL STAGE-II	422.21	6.44%
NTPC Stations SR	168.00	4.06%	ESSAR POWER	410.76	6.26%
Total Volume	2,181.70	52.68%	Total Volume	2,638.55	40.24%
Total Volume in Bilateral	4,141.25		Total Volume in Bilateral	6,557.12	

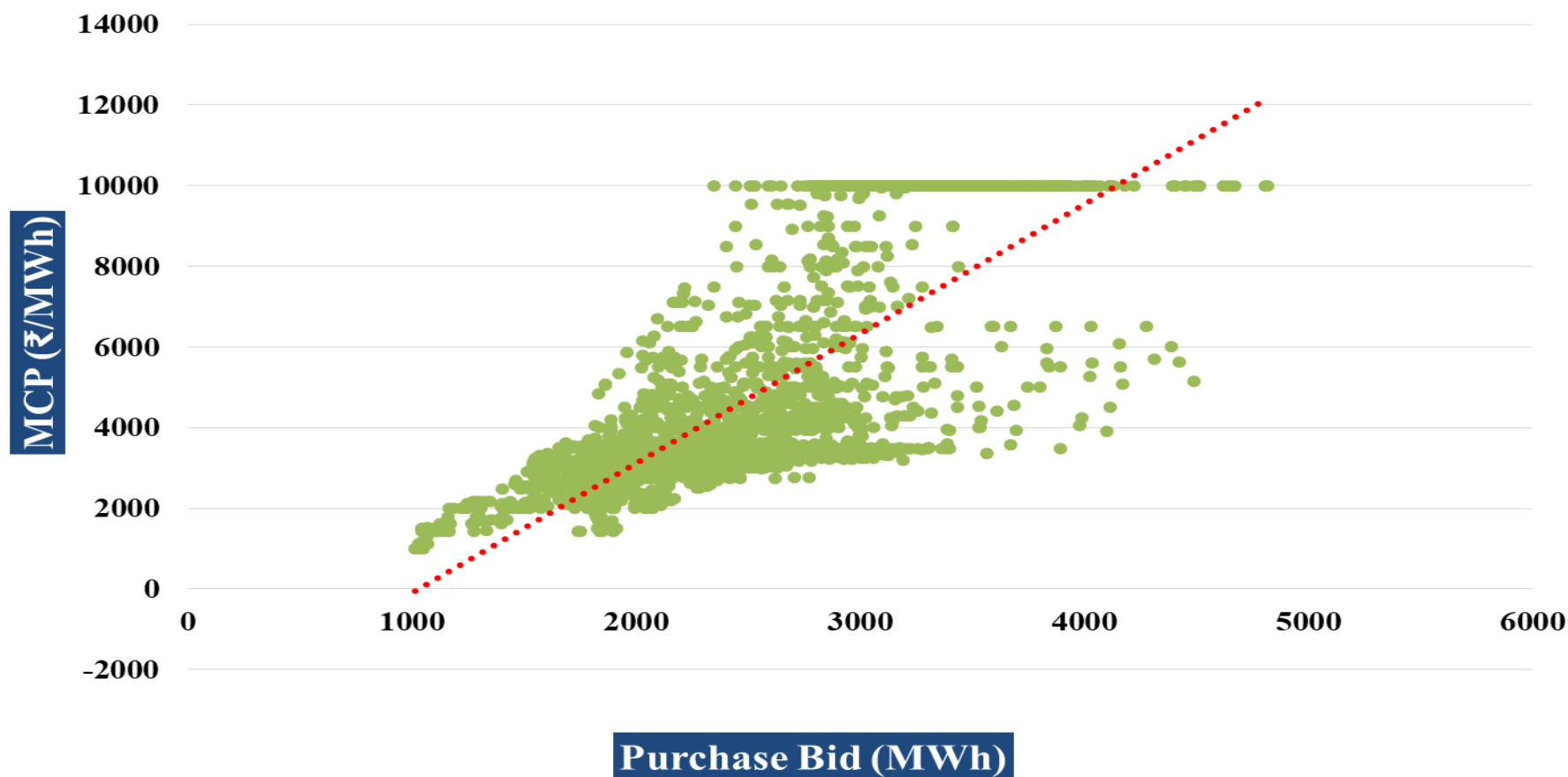
Evening, Day, Night, Morning, Maximum, Minimum, Average MCP (₹/kWh) and Final Scheduled Volume (MU) in DAM

Date	Morning MCP (07:00-10:00)	Day MCP (11:00-17:00)	Evening MCP (18:00- 23:00)	Night MCP (01:00- 06:00, 23:00-24:00)	Maximum MCP	Minimum MCP	Average MCP	Final Scheduled Volume (MU)
01-07-2023	2.48	2.06	5.47	3.73	10.00	2.00	3.47	135.72
02-07-2023	2.52	1.72	3.89	4.05	5.88	1.42	3.08	137.71
03-07-2023	3.20	2.94	7.10	4.99	10.00	2.65	4.62	133.11
04-07-2023	3.19	3.15	6.85	6.06	10.00	2.75	4.93	130.85
05-07-2023	3.38	3.04	7.48	6.51	10.00	2.76	5.22	127.21
06-07-2023	3.45	3.35	7.90	5.85	10.00	2.77	5.23	135.03
07-07-2023	3.02	2.58	6.32	4.35	10.00	2.11	4.10	113.27
08-07-2023	3.01	2.56	4.79	3.47	6.51	2.35	3.46	123.38
09-07-2023	1.96	1.38	3.23	3.09	4.70	1.00	2.44	106.13
10-07-2023	3.01	2.64	5.97	3.71	8.50	2.19	3.84	133.26
11-07-2023	3.76	3.23	7.98	5.83	10.00	3.02	5.26	128.81
12-07-2023	3.58	3.32	7.90	4.58	10.00	2.92	4.87	135.11
13-07-2023	3.98	3.37	8.14	5.93	10.00	3.23	5.41	144.30
14-07-2023	4.16	3.47	8.31	6.31	10.00	3.32	5.62	141.04
15-07-2023	4.23	3.38	8.23	6.35	10.00	3.22	5.60	150.08
16-07-2023	3.61	2.65	7.44	6.94	10.00	2.50	5.26	133.44
17-07-2023	4.12	3.29	8.12	5.39	10.00	3.14	5.25	138.48
18-07-2023	3.43	3.23	7.90	4.98	10.00	2.98	4.94	141.07
19-07-2023	3.16	2.98	7.54	4.42	10.00	2.75	4.57	132.14
20-07-2023	3.19	3.20	8.02	5.09	10.00	2.80	4.95	127.51
21-07-2023	3.53	3.33	7.98	6.17	10.00	3.00	5.36	128.78
22-07-2023	3.55	3.35	7.85	6.09	10.00	3.06	5.30	141.17
23-07-2023	2.63	2.25	6.74	5.31	10.00	2.00	4.33	126.12
24-07-2023	3.26	3.23	8.10	4.43	10.00	2.80	4.80	116.66
25-07-2023	3.29	3.15	7.68	5.24	10.00	2.78	4.92	120.70
26-07-2023	3.38	3.26	7.81	5.82	10.00	2.69	5.16	120.99
27-07-2023	3.10	3.13	7.11	4.71	10.00	2.80	4.58	114.66
28-07-2023	2.94	2.73	5.23	3.48	7.47	2.51	3.61	108.99
29-07-2023	2.78	2.26	4.99	3.51	6.51	2.00	3.39	107.31
30-07-2023	2.05	1.87	4.07	3.25	5.67	1.43	2.85	108.97
31-07-2023	3.11	2.70	8.00	4.20	10.00	2.19	4.53	124.20
Maximum	4.23	3.47	8.31	6.94	10.00	3.32	5.62	150.08
Minimum	1.96	1.38	3.23	3.09	4.70	1.00	2.44	106.13
Average	3.23	2.86	6.91	4.96	9.20	2.55	4.55	127.94

MCP: Market Clearing Price (₹/kWh)

FSV: Final Scheduled Volume (MU)

Comparison of MCP w.r.t. Purchase Bid for 2,976 Time Blocks during the month of July, 2023 in DAM



Time Blocks during the Month [96 time blocks in a day x 31 days = 2,976]

Annexure-VI**Maximum Final Schedule Volume (FSV), Minimum FSV, Maximum Market Clearing Price (MCP) and Minimum MCP in DAM**

Date	Max. FSV (MU)		Max. MCP (₹/kWh)		Min FSV (MU)		Min. MCP (₹/kWh)	
	Time Block	Value	Time Block	Value	Time Block	Value	Time Block	Value
01-07-2023	06:45 - 07:00	1.85	21:45 - 22:00	10.00	04:00 - 04:15	1.14	13:00 - 13:15	2.00
02-07-2023	06:45 - 07:00	2.14	22:45 - 23:00	5.88	12:45 - 13:00	0.99	10:30 - 10:45	1.42
03-07-2023	06:45 - 07:00	1.97	20:45 - 21:00	10.00	04:00 - 04:15	1.18	13:15 - 13:30	2.65
04-07-2023	07:00 - 07:15	1.93	00:00 - 00:15	10.00	05:00 - 05:15	1.12	09:15 - 09:30	2.75
05-07-2023	07:15 - 07:30	2.02	00:00 - 00:15	10.00	22:45 - 23:00	0.98	09:00 - 09:15	2.76
06-07-2023	07:00 - 07:15	1.97	00:00 - 00:15	10.00	22:30 - 22:45	1.09	09:00 - 09:15	2.77
07-07-2023	07:30 - 07:45	1.62	21:15 - 21:30	10.00	03:45 - 04:00	0.87	13:45 - 14:00	2.11
08-07-2023	07:15 - 07:30	1.76	21:15 - 21:30	6.51	00:30 - 00:45	0.81	12:45 - 13:00	2.35
09-07-2023	19:15 - 19:30	1.50	22:45 - 23:00	4.70	01:30 - 01:45	0.86	12:00 - 12:15	1.00
10-07-2023	07:00 - 07:15	2.08	22:15 - 22:30	8.50	02:15 - 02:30	1.12	13:45 - 14:00	2.19
11-07-2023	07:15 - 07:30	2.13	00:00 - 00:15	10.00	21:45 - 22:00	0.96	09:00 - 09:15	3.02
12-07-2023	07:00 - 07:15	2.09	19:00 - 19:15	10.00	05:30 - 05:45	1.04	08:45 - 09:00	2.92
13-07-2023	07:15 - 07:30	2.11	19:00 - 19:15	10.00	21:45 - 22:00	0.93	13:15 - 13:30	3.23
14-07-2023	07:15 - 07:30	2.47	00:00 - 00:15	10.00	22:45 - 23:00	1.01	08:45 - 09:00	3.32
15-07-2023	07:15 - 07:30	2.36	00:00 - 00:15	10.00	22:30 - 22:45	0.91	08:30 - 08:45	3.22
16-07-2023	07:00 - 07:15	2.46	00:00 - 00:15	10.00	22:00 - 22:15	0.91	13:00 - 13:15	2.50
17-07-2023	06:45 - 07:00	2.39	00:00 - 00:15	10.00	01:45 - 02:00	0.98	13:15 - 13:30	3.14
18-07-2023	07:15 - 07:30	2.03	19:00 - 19:15	10.00	21:30 - 21:45	0.98	09:00 - 09:15	2.98
19-07-2023	06:45 - 07:00	1.72	19:30 - 19:45	10.00	05:45 - 06:00	0.97	13:00 - 13:15	2.75
20-07-2023	14:45 - 15:00	1.58	19:00 - 19:15	10.00	05:15 - 05:30	0.93	08:30 - 08:45	2.80
21-07-2023	00:45 - 01:00	1.64	00:00 - 00:15	10.00	20:45 - 21:00	0.99	08:00 - 08:15	3.00
22-07-2023	00:00 - 00:15	1.87	19:30 - 19:45	10.00	05:30 - 05:45	1.22	08:00 - 08:15	3.06
23-07-2023	23:15 - 23:30	1.89	20:00 - 20:15	10.00	05:45 - 06:00	0.97	13:00 - 13:15	2.00
24-07-2023	23:45 - 24:00	1.51	19:00 - 19:15	10.00	05:45 - 06:00	0.94	05:30 - 05:45	2.80
25-07-2023	23:30 - 23:45	1.61	19:45 - 20:00	10.00	05:45 - 06:00	0.81	05:00 - 05:15	2.78
26-07-2023	23:45 - 24:00	1.75	19:30 - 19:45	10.00	05:30 - 05:45	0.85	05:15 - 05:30	2.69
27-07-2023	19:45 - 20:00	1.91	20:45 - 21:00	10.00	05:15 - 05:30	0.82	08:00 - 08:15	2.80
28-07-2023	19:45 - 20:00	1.42	22:30 - 22:45	7.47	01:30 - 01:45	0.83	13:15 - 13:30	2.51
29-07-2023	19:45 - 20:00	1.40	22:15 - 22:30	6.51	05:45 - 06:00	0.86	13:30 - 13:45	2.00
30-07-2023	08:45 - 09:00	1.36	21:45 - 22:00	5.67	04:15 - 04:30	0.97	11:00 - 11:15	1.43
31-07-2023	06:45 - 07:00	1.70	19:00 - 19:15	10.00	05:45 - 06:00	1.01	13:00 - 13:15	2.19

MCP: Market Clearing Price (₹/kWh)**FSV: Final Scheduled Volume (MU)**

Annexure-VII

Sellers and Buyers in Day Ahead Market (DAM) in the month of July, 2023						
S. No.	Entity Name	Sell		Entity Name	Purchase	
		(MU)	Percent (%)		(MU)	Percent (%)
1	Uttar Pradesh	366.35	9.24%	West Bengal	1044.63	26.34%
2	Haryana	269.33	6.79%	Gujarat	483.13	12.18%
3	NVVN (SNA) -	251.12	6.33%	Telangana	345.95	8.72%
4	Himachal Pradesh	232.12	5.85%	Rajasthan	290.09	7.31%
5	Sikkim Urja	185.14	4.67%	Uttar Pradesh	265.15	6.69%
6	Jaypee Nigrie	181.57	4.58%	Maharashtra	241.36	6.09%
7	Chhattisgarh	174.65	4.40%	Andhra Pradesh	231.52	5.84%
8	Bihar	165.55	4.17%	Tamil Nadu	174.77	4.41%
9	Delhi	150.40	3.79%	Kerala	169.58	4.28%
10	Madhya Pradesh	143.77	3.62%	Daman & Diu - Dadra	146.61	3.70%
11	Karnataka	140.66	3.55%	Punjab	134.47	3.39%
12	JITPL	126.42	3.19%	Odisha	61.52	1.55%
13	MB Power	89.52	2.26%	Madhya Pradesh	58.51	1.48%
14	Adani Power	86.23	2.17%	DVC	43.48	1.10%
15	Mahan Energy	85.96	2.17%	Uttarakhand	38.09	0.96%
16	Karcham Wangtoo	84.61	2.13%	Assam	36.96	0.93%
17	Rajasthan	80.55	2.03%	Karnataka	34.76	0.88%
18	Maharashtra	75.33	1.90%	Jharkhand	28.41	0.72%
19	ACBIL	66.85	1.69%	Haryana	20.28	0.51%
20	DB Power	64.02	1.61%	Railways	16.96	0.43%
21	AD Hydro	63.51	1.60%	Bihar	15.64	0.39%
22	Sembcorp Gayatri	50.63	1.28%	Meghalaya	13.27	0.33%
23	Tamil Nadu	47.06	1.19%	ArcelorMittal Nippon	12.92	0.33%
24	Gujarat	45.78	1.15%	Delhi	11.96	0.30%
25	Jindal Power	45.19	1.14%	Himachal Pradesh	11.64	0.29%
26	Jindal Power Ltd.	44.52	1.12%	Goa WR	11.40	0.29%
27	Punjab	43.04	1.09%	Goa SR	6.90	0.17%
28	Andhra Pradesh	42.77	1.08%	Chhattisgarh	6.64	0.17%
29	Jindal Steel	41.46	1.05%	NEA-NR	6.62	0.17%
30	Chandigarh	38.04	0.96%	Tripura	1.46	0.04%
31	Telangana	35.83	0.90%	BHARAT	1.28	0.03%
32	Odisha	34.20	0.86%	Chandigarh	0.23	0.01%
33	Dikchu	27.04	0.68%			
34	RKM Power	27.00	0.68%			
35	Renew Surya Ravi	23.78	0.60%			
36	ADANI WIND	23.05	0.58%			
37	Arunachal Pradesh	22.66	0.57%			
38	Pondicherry	22.53	0.57%			
39	SKS Power	18.81	0.47%			
40	Uttarakhand	18.15	0.46%			
41	Sainj HEP	17.39	0.44%			
42	DVC	14.11	0.36%			
43	Sembcorp Energy	12.84	0.32%			
44	Ostro Kannada	12.55	0.32%			
45	Singoli Bhagwati	12.19	0.31%			

46	Maruti Clean Coal	12.13	0.31%			
47	Jharkhand	12.12	0.31%			
48	Chuzachen	11.98	0.30%			
49	Goa WR	11.69	0.29%			
50	Adani Green	10.46	0.26%			
51	Assam	10.02	0.25%			
52	J&K	9.41	0.24%			
53	Palatana	8.65	0.22%			
54	Sikkim	8.15	0.21%			
55	GMR Warora	7.39	0.19%			
56	Jhabua Power	6.71	0.17%			
57	Meghalaya	6.35	0.16%			
58	Adhunik Power	6.06	0.15%			
59	Shree Cement	5.25	0.13%			
60	Lanco Budhil	5.13	0.13%			
61	Ramagundam	5.00	0.13%			
62	Mizoram	4.24	0.11%			
63	Nagaland	4.24	0.11%			
64	Kerala	2.72	0.07%			
65	IL&FS	2.30	0.06%			
66	West Bengal	2.30	0.06%			
67	DHARIWAL STU	2.21	0.06%			
68	Manipur	1.59	0.04%			
69	Sorang HEP,	1.24	0.03%			
70	Simhapuri Energy	1.09	0.03%			
71	Bongaigaon	1.06	0.03%			
72	Kameng HEP	1.05	0.03%			
73	SBSR Power	0.41	0.01%			
74	Dhariwal ISTS	0.37	0.01%			
75	GMR Kamalanga	0.32	0.01%			
76	WIND FIVE	0.24	0.01%			
77	INOX GREEN	0.02	0.00%			
Total Volume of top 10		2,120.02	53.45%	Total Volume of top 10	3,392.80	85.54%
Total Volume in PXs		3,966.20		Total Volume in PXs	3,966.20	

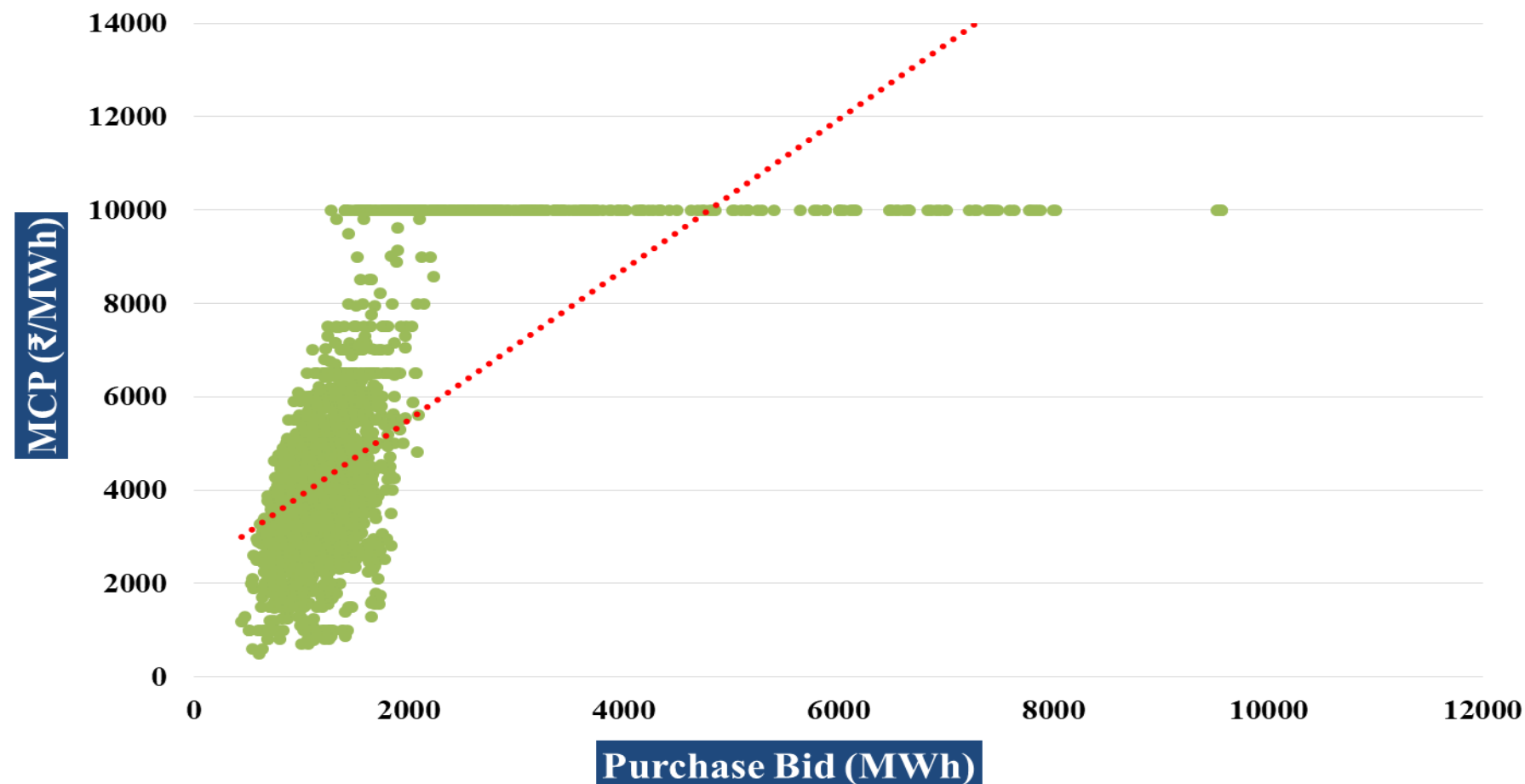
Annexure-VIII**Evening, Day, Night, Morning, Maximum, Minimum, Average MCP (₹/kWh) and Final Scheduled Volume (MU) in RTM**

Date	Morning MCP (07:00-10:00)	Day MCP (11:00-17:00)	Evening MCP (18:00- 23:00)	Night MCP (01:00- 06:00, 23:00-24:00)	Maximum MCP	Minimum MCP	Average MCP	Final Scheduled Volume (MU)
01-07-2023	3.63	3.15	6.69	4.86	10.00	2.31	4.61	107.28
02-07-2023	3.17	2.99	6.69	5.12	10.00	2.00	4.57	92.07
03-07-2023	4.49	5.00	9.16	6.27	10.00	2.82	6.33	78.85
04-07-2023	4.67	3.81	7.76	7.85	10.00	2.27	6.12	79.11
05-07-2023	3.62	2.42	5.19	5.48	10.00	0.49	4.21	89.74
06-07-2023	3.30	2.72	3.97	3.92	6.00	1.19	3.48	80.74
07-07-2023	3.85	3.28	4.20	3.58	5.50	2.00	3.69	68.88
08-07-2023	3.09	2.10	3.77	3.68	5.60	1.50	3.14	76.21
09-07-2023	2.94	2.23	5.26	4.21	10.00	1.30	3.68	112.79
10-07-2023	5.14	4.17	8.23	5.00	10.00	2.95	5.59	102.12
11-07-2023	4.68	3.79	8.54	5.48	10.00	2.50	5.62	91.22
12-07-2023	4.64	3.95	8.68	5.34	10.00	3.19	5.65	91.82
13-07-2023	5.94	4.43	8.97	7.03	10.00	3.45	6.57	86.53
14-07-2023	4.05	3.59	8.01	5.51	10.00	2.83	5.33	71.87
15-07-2023	4.83	3.09	7.76	5.86	10.00	2.07	5.35	91.07
16-07-2023	3.55	2.57	4.83	4.39	7.50	1.60	3.83	79.69
17-07-2023	4.30	3.66	8.21	4.78	10.00	2.51	5.23	76.24
18-07-2023	3.58	2.98	5.28	3.85	6.51	1.50	3.91	72.28
19-07-2023	4.07	3.84	8.46	4.65	10.00	2.01	5.27	71.60
20-07-2023	4.63	4.14	8.90	5.90	10.00	2.96	5.93	71.66
21-07-2023	5.08	3.91	8.24	5.22	10.00	2.59	5.57	71.56
22-07-2023	4.22	2.67	5.84	4.98	10.00	1.00	4.39	65.64
23-07-2023	2.91	2.15	4.53	4.17	6.40	0.60	3.46	67.72
24-07-2023	3.85	3.44	8.13	4.56	10.00	1.70	5.01	75.97
25-07-2023	4.19	3.19	7.83	5.00	10.00	2.00	5.04	66.03
26-07-2023	3.42	2.89	5.98	3.70	10.00	1.51	3.99	68.77
27-07-2023	2.86	2.26	4.49	2.91	6.22	0.80	3.10	64.86
28-07-2023	3.08	1.88	4.13	2.96	5.70	0.80	2.96	74.30
29-07-2023	2.00	1.51	4.39	2.87	5.89	0.70	2.71	105.21
30-07-2023	3.01	1.42	5.13	3.84	7.50	0.80	3.32	101.87
31-07-2023	3.87	3.04	7.14	3.97	6.01	2.15	3.69	42.11
Maximum	5.94	5.00	9.16	7.85	10.00	3.45	6.57	112.79
Minimum	2.00	1.42	3.77	2.87	5.50	0.49	2.71	42.11
Average	3.89	3.11	6.59	4.74	8.67	1.87	4.56	80.51

MCP: Market Clearing Price (₹/kWh)

FSV: Final Scheduled Volume (MU)

Comparison of MCP w.r.t. Purchase Bid for 2,976 Time Blocks during the month of July, 2023 in RTM



Maximum Final Schedule Volume (FSV), Minimum FSV, Maximum Market Clearing Price (MCP) and Minimum MCP in RTM

Date	Max. FSV (MU)		Max. MCP (₹/kWh)		Min FSV (MU)		Min. MCP (₹/kWh)	
	Time Block	Value	Time Block	Value	Time Block	Value	Time Block	Value
01-07-2023	08:30 - 08:45	1.39	21:30 - 21:45	10.00	18:45 - 19:00	0.85	10:30 - 10:45	2.31
02-07-2023	11:45 - 12:00	1.34	21:00 - 21:15	10.00	22:30 - 22:45	0.64	08:30 - 08:45	2.00
03-07-2023	16:00 - 16:15	1.30	00:00 - 00:15	10.00	21:15 - 21:30	0.31	08:00 - 08:15	2.82
04-07-2023	12:15 - 12:30	1.20	00:00 - 00:15	10.00	22:15 - 22:30	0.42	10:30 - 10:45	2.27
05-07-2023	14:30 - 14:45	1.71	00:00 - 00:15	10.00	20:00 - 20:15	0.52	08:15 - 08:30	0.49
06-07-2023	14:00 - 14:15	1.19	00:00 - 00:15	6.00	18:00 - 18:15	0.39	18:00 - 18:15	1.19
07-07-2023	14:30 - 14:45	1.09	00:45 - 01:00	5.50	23:30 - 23:45	0.31	18:15 - 18:30	2.00
08-07-2023	15:45 - 16:00	1.29	00:45 - 01:00	5.60	01:30 - 01:45	0.48	13:15 - 13:30	1.50
09-07-2023	11:15 - 11:30	1.71	23:15 - 23:30	10.00	06:45 - 07:00	0.64	11:30 - 11:45	1.30
10-07-2023	15:30 - 15:45	1.52	19:00 - 19:15	10.00	20:00 - 20:15	0.61	13:00 - 13:15	2.95
11-07-2023	17:15 - 17:30	1.21	19:00 - 19:15	10.00	01:15 - 01:30	0.59	13:00 - 13:15	2.50
12-07-2023	09:45 - 10:00	1.43	18:45 - 19:00	10.00	19:30 - 19:45	0.40	08:45 - 09:00	3.19
13-07-2023	17:45 - 18:00	1.29	00:00 - 00:15	10.00	02:45 - 03:00	0.51	10:15 - 10:30	3.45
14-07-2023	23:15 - 23:30	1.04	19:00 - 19:15	10.00	04:45 - 05:00	0.54	13:15 - 13:30	2.83
15-07-2023	21:45 - 22:00	1.73	00:00 - 00:15	10.00	18:00 - 18:15	0.63	12:15 - 12:30	2.07
16-07-2023	16:00 - 16:15	1.16	22:15 - 22:30	7.50	04:00 - 04:15	0.51	13:15 - 13:30	1.60
17-07-2023	23:15 - 23:30	1.25	19:00 - 19:15	10.00	18:15 - 18:30	0.44	13:00 - 13:15	2.51
18-07-2023	21:15 - 21:30	1.13	19:45 - 20:00	6.51	02:45 - 03:00	0.41	13:00 - 13:15	1.50
19-07-2023	23:45 - 24:00	1.51	19:15 - 19:30	10.00	05:00 - 05:15	0.32	13:00 - 13:15	2.01
20-07-2023	15:30 - 15:45	1.20	19:00 - 19:15	10.00	20:00 - 20:15	0.44	13:15 - 13:30	2.96
21-07-2023	23:15 - 23:30	1.05	19:00 - 19:15	10.00	19:15 - 19:30	0.34	13:00 - 13:15	2.59
22-07-2023	20:45 - 21:00	1.30	00:30 - 00:45	10.00	05:15 - 05:30	0.33	13:30 - 13:45	1.00
23-07-2023	14:30 - 14:45	1.04	19:45 - 20:00	6.40	07:30 - 07:45	0.49	13:00 - 13:15	0.60
24-07-2023	23:45 - 24:00	1.25	19:00 - 19:15	10.00	19:00 - 19:15	0.50	13:00 - 13:15	1.70
25-07-2023	22:45 - 23:00	1.11	19:30 - 19:45	10.00	19:45 - 20:00	0.41	13:15 - 13:30	2.00
26-07-2023	12:45 - 13:00	1.06	19:15 - 19:30	10.00	22:30 - 22:45	0.44	13:00 - 13:15	1.51
27-07-2023	13:45 - 14:00	0.85	21:00 - 21:15	6.22	18:45 - 19:00	0.41	13:00 - 13:15	0.80
28-07-2023	19:45 - 20:00	1.12	00:30 - 00:45	5.70	04:30 - 04:45	0.52	13:00 - 13:15	0.80
29-07-2023	18:45 - 19:00	1.62	19:30 - 19:45	5.89	00:15 - 00:30	0.67	13:00 - 13:15	0.70
30-07-2023	22:30 - 22:45	1.31	22:30 - 22:45	7.50	16:45 - 17:00	0.78	14:30 - 14:45	0.80
31-07-2023	12:15 - 12:30	1.18	00:30 - 00:45	6.01	01:00 - 01:15	0.59	15:15 - 15:30	2.10

MCP: Market Clearing Price (₹/kWh)

FSV: Final Scheduled Volume (MU)

Sellers and Buyers in Real Time Market (RTM) in the month of July, 2023						
S. No.	Entity Name	Sell		Entity Name	Purchase	
		(MU)	Percent (%)		(MU)	Percent (%)
1	Madhya Pradesh	404.36	15.92%	Telangana	501.74	19.75%
2	J&K	159.57	6.28%	West Bengal	278.18	10.95%
3	Bihar	153.64	6.05%	Rajasthan	236.79	9.32%
4	Punjab	131.31	5.17%	Andhra Pradesh	195.90	7.71%
5	Himachal	117.82	4.64%	Kerala	156.24	6.15%
6	Tamil Nadu	107.40	4.23%	Uttar Pradesh	134.60	5.30%
7	Odisha	104.03	4.10%	Maharashtra	133.49	5.25%
8	Haryana	100.61	3.96%	Punjab	112.91	4.44%
9	NTPC BARH1	99.35	3.91%	Odisha	83.09	3.27%
10	Delhi	92.28	3.63%	Uttarakhand	81.18	3.20%
11	Rajasthan	78.75	3.10%	Gujarat	76.42	3.01%
12	Telangana	75.03	2.95%	Tamil Nadu	69.18	2.72%
13	Karnataka	66.81	2.63%	DVC	57.34	2.26%
14	Chhattisgarh	66.27	2.61%	Delhi	56.79	2.24%
15	Andhra Pradesh	57.49	2.26%	Assam	47.45	1.87%
16	Maharashtra	56.70	2.23%	Himachal Pradesh	39.77	1.57%
17	Uttar Pradesh	42.63	1.68%	Madhya Pradesh	37.21	1.46%
18	Uttarakhand	40.64	1.60%	Karnataka	28.86	1.14%
19	Jharkhand	40.47	1.59%	Bihar	28.30	1.11%
20	Assam	30.74	1.21%	Jharkhand	23.76	0.94%
21	Sasan UMPP	29.05	1.14%	Daman & Diu - Dadra	23.18	0.91%
22	Karcham	26.36	1.04%	J&K	20.84	0.82%
23	MB Power	24.23	0.95%	ArcelorMittal Nippon	18.67	0.73%
24	Mahan Energy	23.29	0.92%	Haryana	18.52	0.73%
25	West Bengal	21.57	0.85%	Chhattisgarh	18.45	0.73%
26	Gujarat	18.48	0.73%	BHARAT	12.64	0.50%
27	Manipur	14.11	0.56%	Tripura	11.36	0.45%
28	Nabinagar Power	13.84	0.54%	Meghalaya	10.58	0.42%
29	Adani Power	13.43	0.53%	Railways	4.79	0.19%
30	RKM Power	13.38	0.53%	Manipur	3.41	0.13%
31	Palatana	12.79	0.50%	Sainj HEP	2.60	0.10%
32	Sembcorp	11.36	0.45%	Karcham Wangtoo	2.54	0.10%
33	Singrauli	10.51	0.41%	Simhapuri Energy	2.26	0.09%
34	Rihand-I	9.29	0.37%	Sikkim	1.93	0.08%
35	ACBIL	9.14	0.36%	Jindal Steel	1.44	0.06%
36	Kahalgaon-II	9.02	0.36%	Goa SR	1.43	0.06%
37	AD Hydro	8.83	0.35%	Arunachal Pradesh	1.36	0.05%
38	Sikkim	8.68	0.34%	Ratnagiri Gas & Power	1.07	0.04%
39	Pondicherry	8.39	0.33%	Gandhar	0.90	0.04%
40	TRN Energy	8.28	0.33%	Goa WR	0.75	0.03%
41	DB Power	8.00	0.31%	Mahan Energy Limited	0.60	0.02%
42	Jindal Power	7.44	0.29%	Kawas	0.54	0.02%
43	Kameng HEP	7.43	0.29%	Jindal Power Ltd. Stg-II	0.39	0.02%
44	Rihand-III	7.26	0.29%	Maruti Clean Coal	0.28	0.01%
45	Rihand-II	6.95	0.27%	SKS Power	0.27	0.01%

46	Jhabua Power	6.46	0.25%	Chandigarh	0.16	0.01%
47	Adhunik Power	6.35	0.25%	Singoli Bhagwati	0.15	0.01%
48	Jindal Power	6.19	0.24%	Pondicherry	0.10	0.00%
49	NTPC	5.55	0.22%	ACBIL	0.01	0.00%
50	Barh Stg-2	5.06	0.20%			
51	Tashiding HEP	4.93	0.19%			
52	Ostro Kannada	4.80	0.19%			
53	Bongaigaon	4.80	0.19%			
54	Singoli Bhagwati	4.39	0.17%			
55	Neyveli New	4.36	0.17%			
56	Daman & Diu -	4.19	0.17%			
57	Kahalgaon	4.15	0.16%			
58	Simhapuri	4.14	0.16%			
59	Sembcorp	4.06	0.16%			
60	Dadri TPS	4.00	0.16%			
61	Jindal Steel	3.90	0.15%			
62	Kerala	3.89	0.15%			
63	Barh STPS Stg -	3.85	0.15%			
64	NTPL	3.74	0.15%			
65	Maruti Clean	3.64	0.14%			
66	Mouda Stg-2	3.56	0.14%			
67	Farakka	3.51	0.14%			
68	Tripura	3.47	0.14%			
69	Jorethang	3.32	0.13%			
70	DVC	3.31	0.13%			
71	Tanda Stg-2	3.20	0.13%			
72	Talcher Stg-2	3.16	0.12%			
73	Arunachal	3.14	0.12%			
74	NTPC Sholapur	2.98	0.12%			
75	GMR Warora	2.93	0.12%			
76	Dadri Stg-2	2.81	0.11%			
77	Shree Cement	2.75	0.11%			
78	SKS Power	2.67	0.11%			
79	Jaypee Nigrie	2.60	0.10%			
80	Korba	2.56	0.10%			
81	Chandigarh	2.43	0.10%			
82	The Tata Power	2.39	0.09%			
83	Vindhyachal stg-	2.37	0.09%			
84	Khargone STPP	2.15	0.08%			
85	Sainj HEP	2.13	0.08%			
86	Ramagundam	2.11	0.08%			
87	NTPC Kudgi	2.07	0.08%			
88	Unchahar-IV	1.89	0.07%			
89	Unchahar-II	1.86	0.07%			
90	Mouda Stg-1	1.85	0.07%			
91	Nagaland	1.69	0.07%			
92	Vindhyachal stg-	1.60	0.06%			
93	Sipat Stg-1	1.53	0.06%			
94	Vindhyachal stg-	1.51	0.06%			
95	Vindhyachal stg-	1.43	0.06%			

96	Farakka Stg 3	1.39	0.05%			
97	Sipat Stg-2	1.28	0.05%			
98	NLC	1.11	0.04%			
99	NTPC Lara	1.03	0.04%			
100	Vindhyachal stg-	1.01	0.04%			
101	Simhadri Stg-1	0.98	0.04%			
102	Korba Stg 3	0.98	0.04%			
103	Talcher	0.90	0.04%			
104	Ramagundam	0.88	0.03%			
105	KBUNL(MTPS-	0.88	0.03%			
106	Renew Surya	0.82	0.03%			
107	Simhadri Stg-2	0.78	0.03%			
108	Unchahar-I	0.72	0.03%			
109	Unchahar-III	0.60	0.02%			
110	Sorang HEP,	0.41	0.02%			
111	Goa WR	0.39	0.02%			
112	IL&FS	0.35	0.01%			
113	Darlipalli	0.33	0.01%			
114	Lanco Budhil	0.31	0.01%			
115	Dikchu	0.21	0.01%			
116	AGBPP	0.18	0.01%			
117	SBSR Power	0.09	0.00%			
118	GMR	0.07	0.00%			
119	Meghalaya	0.07	0.00%			
120	JITPL	0.06	0.00%			
121	AGTPP	0.06	0.00%			
122	INOX GREEN	0.04	0.00%			
123	Sikkim Urja	0.03	0.00%			
124	Anta	0.02	0.00%			
Total Volume of top 10		1,470.37	57.88%	Total Volume of top 10	1,914.12	75.35%
Total Volume in PXs		2,540.45		Total Volume in PXs	2,540.45	

Cross Border Electricity Transactions in Day Ahead Market (DAM) in IEX with Nepal and Bhutan during the month of July, 2023			
S. No	Delivery Date	Buy Volume By Nepal (MU)	Sell Volume By Nepal (MU)
1	01-07-2023	0.38	10.11
2	02-07-2023	0.27	7.65
3	03-07-2023	0.00	9.37
4	04-07-2023	0.00	8.67
5	05-07-2023	0.00	8.84
6	06-07-2023	0.00	8.73
7	07-07-2023	0.00	8.76
8	08-07-2023	0.21	8.90
9	09-07-2023	0.21	6.91
10	10-07-2023	0.22	7.28
11	11-07-2023	0.43	7.96
12	12-07-2023	0.45	7.99
13	13-07-2023	0.04	9.81
14	14-07-2023	0.37	10.20
15	15-07-2023	0.16	10.00
16	16-07-2023	0.19	10.20
17	17-07-2023	0.13	8.46
18	18-07-2023	0.17	8.01
19	19-07-2023	0.24	8.23
20	20-07-2023	0.41	7.56
21	21-07-2023	0.40	6.80
22	22-07-2023	0.41	6.26
23	23-07-2023	0.47	6.62
24	24-07-2023	0.65	7.29
25	25-07-2023	0.80	6.07
26	26-07-2023	0.00	7.67
27	27-07-2023	0.00	6.83
28	28-07-2023	0.00	6.94
29	29-07-2023	0.00	8.06
30	30-07-2023	0.00	7.74
31	31-07-2023	0.00	7.21
Total		6.62	251.12
Grand Total		257.74	

-: No transaction took place

Note: Cross Border Transactions of Electricity of 257.74 MU (i.e. 6.62 MU buy by Nepal and 251.12 MU sell by Nepal) happened during July, 2023 in IEX, which is included in DAM Volume of July, 2023 in IEX.

Analysis for change in trend of Final Scheduled Volume in DAM on 1st Sunday, 4th Monday of July, 2023 (i.e. 2nd & 24th July, 2023)

Final Scheduled Volume (MU) and the Daily Avg. MCP (₹/kWh) invariably shows decreasing trend on Sundays and increasing trend on Mondays as the demand of electricity in the country is less on Sundays as compared to other days of week. However, during the month of July, 2023, it is observed that on first Sunday (02nd July, 2023), FSV showed increasing trend in comparison to first Saturday (01st July, 2023), on fourth Monday (24th July, 2023), FSV showed decreasing trend in comparison to fourth Sunday (23th July, 2023).

- (i) On first Sunday (02nd July, 2023), although there was decrease in purchase on power exchange by some of the States in comparison to first Saturday (01st July, 2023) by **23.77 MU** [i.e. West Bengal (9.87 MU), Punjab (6.21 MU), Gujarat (2.98 MU), Daman & Diu - Dadra & Nagar Haveli (1.26 MU) and Odisha (0.85 MU), etc.], there was also increase in purchase on power exchange by some of the States by **25.75 MU** [i.e. Telangana (7.93 MU), Andhra Pradesh (4.37 MU), Rajasthan (3.30 MU), ArcelorMittal Nippon steel (ESIL) (2.49 MU) and Jharkhand (2.35 MU), etc.]. This resulted in an overall increase in FSV by **1.98 MU** on Sunday (02nd July, 2023) as compared to Saturday (01st July, 2023).
- (ii) On fourth Monday (24th July, 2023), although there was increase in purchase on power exchange by some of the States in comparison to fourth Sunday (23th July, 2023) by **26.50 MU** [i.e. West Bengal (13.90 MU), Gujarat (7.72 MU), Maharashtra (2.54 MU), Uttarakhand (1.40MU) and Goa WR (0.35 MU), etc.], there was also decrease in purchase on power exchange by some of the States by **35.95 MU** [i.e. Uttar Pradesh (18.00 MU), Rajasthan (3.43 MU), Chhattisgarh (2.91 MU), Kerala (2.75 MU) and Tamil Nadu (2.45 MU), etc.]. This resulted in an overall decrease in FSV by **9.46 MU** on Monday (24th July, 2023) as compared to Sunday (23th July, 2023).

Definitions/ Terminologies used in the Report

- 1. Area Clearing Price (ACP)** is price discovered in each time block of concerned bid area. The country has been divided into 13 bid areas for the purpose of calculating prices in Power Exchanges.
The 13 Bid areas are as under:
N1: Jammu and Kashmir, Himachal Pradesh, Chandigarh, Haryana; **N2:** Uttar Pradesh, Uttaranchal, Rajasthan, Delhi; **N3:** Punjab; **E1:** West Bengal, Sikkim, Bihar, Jharkhand; **E2:** Odisha; **W1:** Madhya Pradesh; **W2:** Maharashtra, Gujarat, Daman and Diu, Dadar and Nagar Haveli, North Goa; **W3:** Chhattisgarh; **S1:** Andhra Pradesh, Telangana, Karnataka, Pondicherry (Yanam), South Goa; **S2:** Tamil Nadu, Pondicherry (Puducherry), Pondicherry (Karaikal), Pondicherry (Mahe); **S3:** Kerala; **A1:** Tripura, Manipur, Mizoram, Nagaland; **A2:** Assam, Arunachal Pradesh, Meghalaya.
- 2. Average MCP** is the average of Daily Avg. MCP of the days during the month on which transaction happened.
- 3. Bilateral Transaction** means a transaction for exchange of electrical energy (MWh) between a specified buyer and a specified seller, from a specified point of injection to a specified point of drawal for a fixed or varying quantum of power (MW) for any time block during a month.
- 4. Daily Average MCP** is the average of MCP of all 96 Time Blocks of the day during which transaction happened.
- 5. Day-Ahead Market (DAM)** means a market where Day Ahead Contracts are transacted on the Power Exchanges, wherein Collective Transactions occur on day (T) and delivery of electricity is on the next day (T+1).
- 6. Elasticity** is percentage of change in MCP with respect to change in independent variable viz. peak demand, average purchase bid, average sell bid, generation from coal based plants, generation from hydro based plants, generation from wind based plants and generation from solar plants.
- 7. Energy Supplied** is the total energy (MU) available at the States' periphery.
- 8. Final Scheduled Volume** is the total of scheduled volume of all 96 time blocks in a day during the month in which transaction happened.
- 9. Green Term Ahead Market (GTAM)** is based on the principles of current Term Ahead Market (TAM) and will offer trade for Solar, Non-Solar and Hydro Renewable Energy (RE) generation.

- 10. Green Day Ahead Market (GDAM)** is based on the principles of current Day Ahead Market (DAM), where market participants purchase and sell electricity generated from renewable sources.
- 11. Long Duration Contracts** on the power exchanges is a product segment under which the participants are allowed to trade for delivery of power upto 90 Days (Delivery Starting from T+2 to T+90 Days).
- 12. MCP** is the price discovered in each of the 15 Minute Time Block. The day is divided in 96-time blocks of 15 minutes each.
- 13. Real Time Market (RTM)** means a market where Real-Time Contracts are transacted on the Power Exchange(s), i.e. a contract other than Day Ahead Contract or Intraday Contract or Contingency Contract. In RTM collective transactions occur on day (T) or day (T-1) and delivery of electricity is on day (T) for a specified delivery period.
- 14. Term Ahead Market (TAM)** means a market where Term Ahead Contracts are transacted on the Power Exchange(s), i.e. a contract wherein transactions occur on day (T) and physical delivery of electricity is on a day more than one day ahead (T + 2 or more).