



भारत सरकार/ Government of India

विद्युत मंत्रालय/ Ministry of Power

केन्द्रीय विद्युत प्राधिकरण/ Central Electricity Authority

आर. ए. प्रभाग/ Regulatory Affairs Division

Subject: Monthly Market Monitoring Report for the month of September, 2022-reg.

In the month of September, 2022 a total of 126,914 MU of electricity was transacted in the country out of which 61,637 MU was transacted through ISTS, and the remaining from state controlled generating stations through intra-state system.

A total of 18,648 MU was transacted under Short Term Market, out of which 8,195 MU was transacted through Power Exchanges and remaining through bilateral transactions & deviations. Thus, the total short term trade in September, 2022 was 14.69 % of total volume of electricity traded in September, 2022 and 6.46 % was through Power Exchanges.

If we compare these transactions with respect to the electricity supplied through ISTS, the short term transactions constitutes about 30.25 % of ISTS transactions, out of which transaction through the power exchanges constitutes 13.30 %.

The monthly market monitoring report for the month of September, 2022 giving details of electricity transaction through the power exchanges and other short term markets is annexed below for reference.

Pardeep Jindal

Chief Engineer (RA)

To

All Stake holders



सत्यमेव जयते

मासिक मार्केट मॉनिटरिंग रिपोर्ट - सितंबर, 2022

Monthly Market Monitoring Report September, 2022



भारत सरकार/ Government of India

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Summary of Market Monitoring Report
for the month of September, 2022

SUMMARY FOR MONTH: SEPTEMBER, 2022

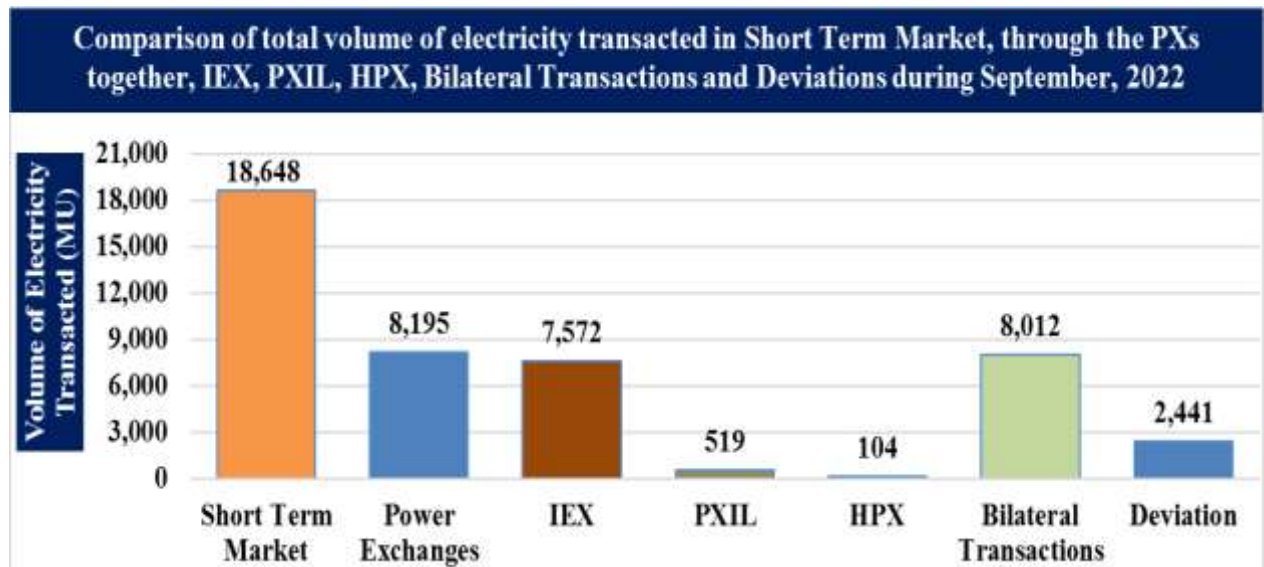
SUMMARY OF ELECTRICITY TRANSACTIONS ON POWER EXCHANGES IN INDIA

- A total volume of **8,195 MU** electricity was transacted through the three power exchanges i.e. IEX, PXIL & HPX, during the month of September, 2022. This volume of electricity is on delivery date basis and includes transactions through DAM, GDAM, RTM, TAM and GTAM market segments.

Segment	Transactions happened in the PXs (IEX, PXIL & HPX combined)			
	FSV (MU)	Average MCP (Rs/kWh)	Congestion (MU)	Real Time Curtailment (MU)
DAM	4,062.54	5.73	0.00	0.00
GDAM	324.65	5.60	0.00	0.00
RTM	2,193.25	4.79	5.79	0.00
TAM	1,459.44	6.32	2.19	2.14
GTAM	155.18	5.77	0.57	0.00
Total in PXs	8,195.06	5.58*	8.55	2.14

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

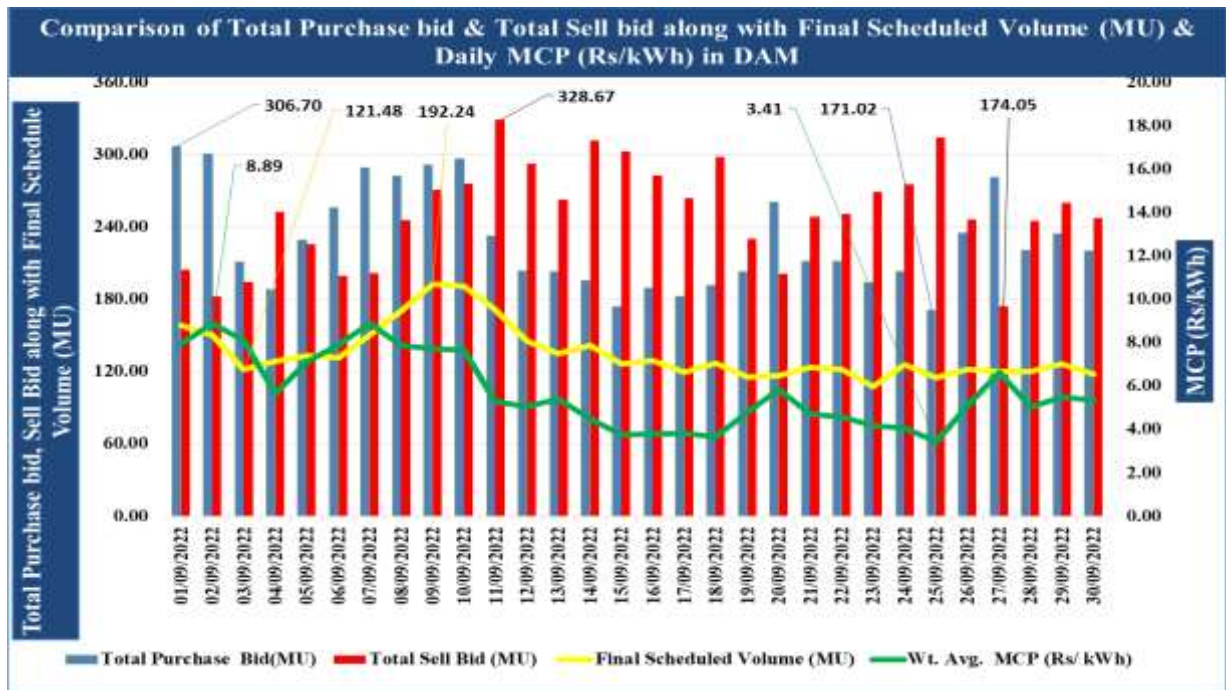
- Under the Bilateral trade a total of **8,012 MU** of electricity was transacted and **2,441 MU** was transacted as deviation. Thus a total of **18,648 MU** of electricity was transacted as short term trade. In the month of September, 2022 a total of **126,914 MU** of electricity was supplied in the country, thus the share of short term market in the total volume of electricity traded in September, 2022 was **14.69%**.



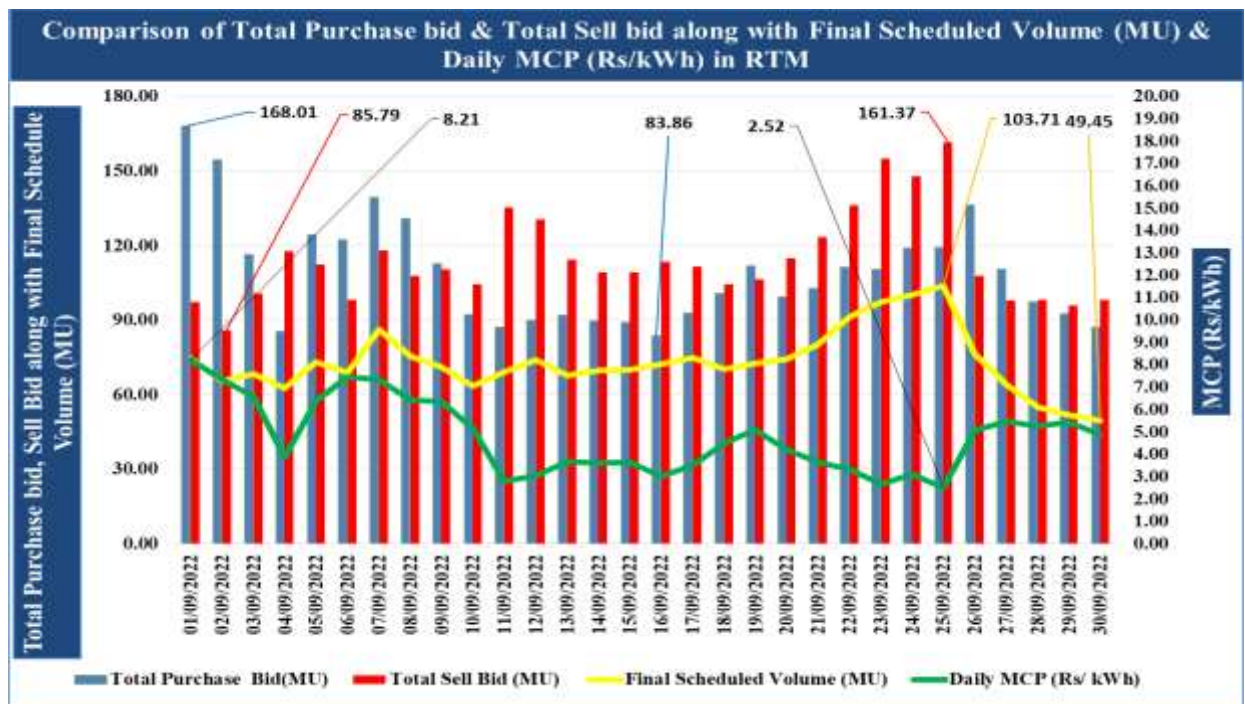
- The total volume of congestion that happened during the month of September, 2022 was **8.55 MU** which is only 0.10 % of the total volume of electricity transacted in the power exchanges and 0.007 % of total energy supplied during the month of September, 2022.
- Congestion was observed in RTM for 90 time blocks on 6 days i.e. 8th to 12th & 25th September, 2022, in TAM on 4 days i.e. 9th, 13th, 15th & 27th September, 2022, in GTAM on 1 day i.e. 02nd September, 2022, No congestion happened in DAM & GTAM.

- The total volume of real time curtailment reported in the month of September, 2022 was only **2.14 MU**. The total volume of electricity scheduled through ISTS during the month of September, 2022 was **61,637 MU**. **The total volume of electricity transacted in the short term market was 30.25 % of total volume schedule at ISTS in the month of September, 2022.**
- The variation of Purchase and Sell bids, Final Scheduled Volume and Daily Avg. MCP in DAM and RTM during the month of September, 2022 are shown in following figures:

DAM Volume

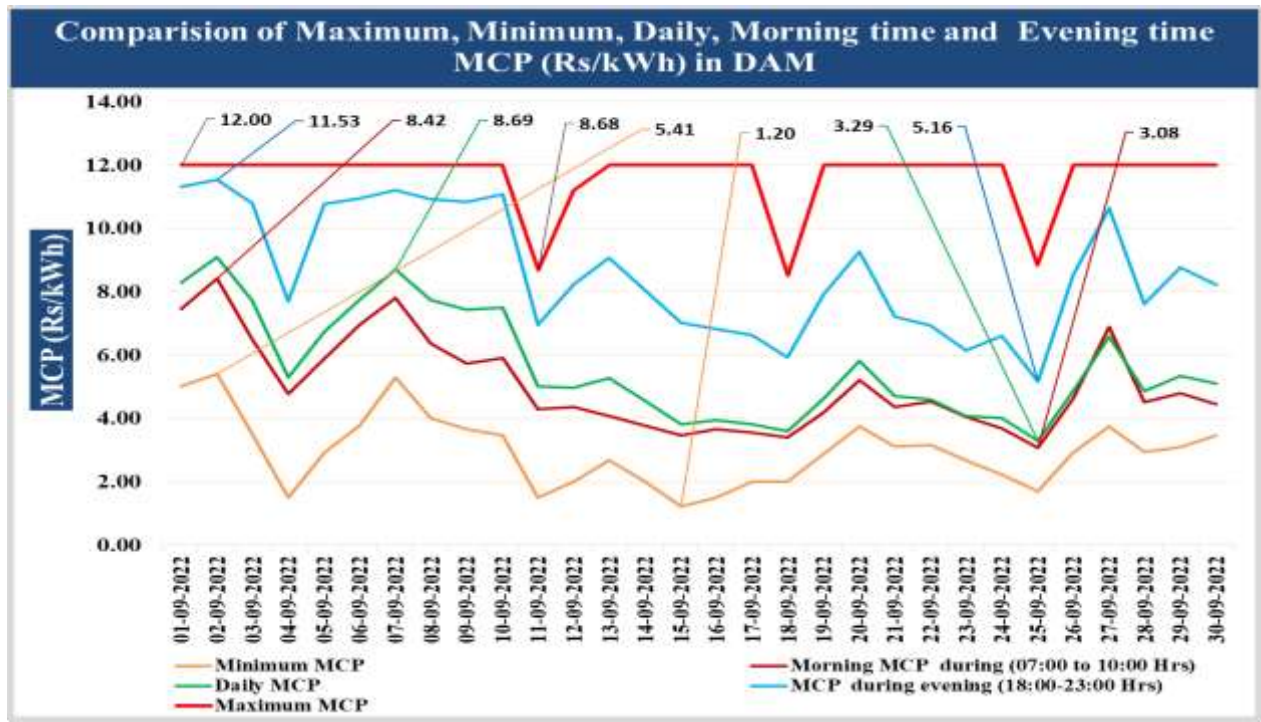


RTM Volume

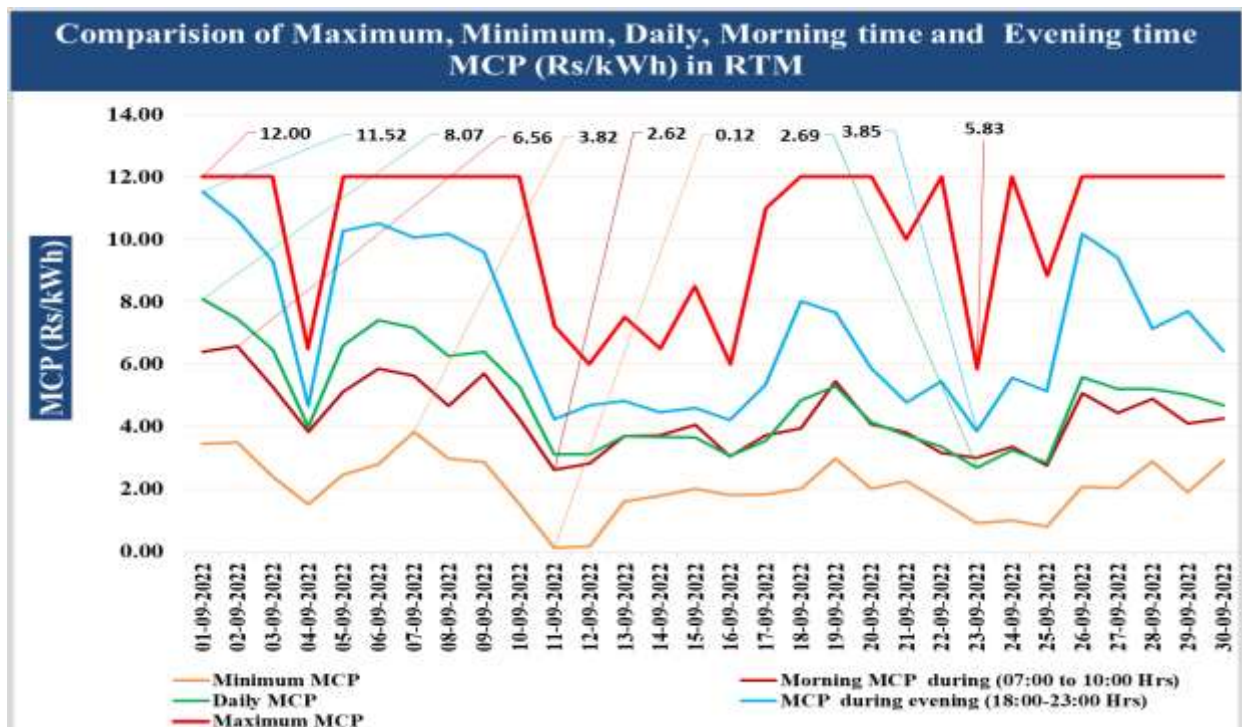


- The variation of Maximum, Minimum, Daily, Morning and Evening time MCPs in DAM and RTM during the month of September, 2022 are shown in following figures:

DAM Prices



RTM Prices



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 three power exchanges, viz., IEX, PXIL & HPX in the Day Ahead Market (DAM) in the month of September, 2022 was **4,062.54 MU**. The total energy supplied in the country during the month of September, 2022 was 126,914 MU. Thus, the volume of electricity transacted on both the power exchanges in DAM during September, 2022 was 3.20 % of the total energy supplied in the country. Comparing with the **3,538.82 MU** of total volume of electricity transacted in DAM during the past month .i.e. August, 2022, which was 2.77 % of the total energy supplied [127,881 MU] in the country during August, 2022. Similarly, the total volume of electricity transacted in DAM during previous year .i.e. September, 2021, it was **6,419.54 MU** which was 5.71 % of the total energy supplied [112,435 MU] in the country during September, 2021.
- 1.2.** The volume of electricity transacted on on IEX and PXIL during September, 2022 were **4,049.65 MU** and **12.89 MU**, respectively, which means that the total volume transacted on IEX was **99.68 %** of the total volume on power exchanges. The volume of electricity transacted on IEX and PXIL during August, 2022 were **3,528.70 MU** and **10.12 MU**, respectively, which means that the total volume transacted on IEX was **99.72 %** of the total volume on power exchanges. Also, the volume of electricity transacted on IEX and PXIL during September, 2021, were **6,418.27 MU** and **1.27 MU** respectively.
- 1.3.** The DAM volume for September, 2022 in IEX is inclusive of Cross Border Transactions of Electricity happened with Nepal [details given at **Annexure XII**].
- 1.4.** The Average Market Clearing Price (MCP) on IEX during the month of September, 2022 was **Rs 5.73/kWh**, which shows an increase of 8.94 % & 30.23 % when compared with average MCP's for the month of August, 2022 and September, 2021, which were **Rs 5.26/kWh** and **Rs 4.40/kWh**, respectively. On PXIL, the average MCP during the month of September, 2022 was **Rs 6.19/kWh**, which shows a decrease of 3.58 % and 5.06 % when compared with average MCP's for the month August, 2022 and September, 2021, which were **Rs 6.42/kWh** and **Rs 6.52/kWh** respectively.
- 1.5. DAM 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 September, 2022 as compared with August, 2022 and September, 2021 is given in Table- 1 & 2:

(a) Final Scheduled Volume:

Exchange	Period	Final Scheduled Volume (MU)			
		Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
IEX	September, 2022	4,049.65	107.43	192.24	134.99
	August, 2022*	3,528.70	67.25	157.3	113.83

	%Change (Month over Month)	14.76	59.75	22.21	18.59
	September, 2021	6,418.27	154.11	294.18	213.94
	%Change (Year over Year)	-36.90	-30.29	-34.65	-36.90
	September, 2022	12.89	0.01	1.80	0.52
	August, 2022	10.12	0.002	1.88	0.35
	%Change (Month over Month)	27.37	400.00	-4.26	48.57
	September, 2021	1.27	0.03	0.38	0.21
	%Change (Year over Year)	914.96	-66.67	373.68	147.62
	September, 2022	-	-	-	-
	August, 2022	-	-	-	-
	%Change (Month over Month)	NA	NA	NA	NA

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

Table: 1

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

Exchange	Period	Prices				
		Daily Avg. MCP (Rs/kWh)			ACP (Rs/kWh)	
		Minimum	Maximum	Average	Minimum	Maximum
	September, 2022	3.41	8.89	5.73	1.20	12.00
	August, 2022	3.22	7.43	5.26	1.00	12
	Change% (Month over Month)	5.90	19.65	8.94	20.00	0.00
	September, 2021	2.35	7.04	4.40	1.50	20.00
	%Change (Year over Year)	40.00	28.98	27.95	-20.00	-40.00
	September, 2022	3.16	10.13	6.19	3.16	12.00
	August, 2022	3.00	9.12	6.42	2.00	12.00
	%Change Month over Month)	5.33	11.07	-3.58	58.00	0.00
	September, 2021	5.00	8.09	6.52	3.33	15.90
	%Change (Year over Year)	-36.80	25.22	-5.06	-5.11	-24.53
	September, 2022	-	-	-	-	-
	August, 2022	-	-	-	-	-
	%Change Month over Month)	NA	NA	NA	NA	NA

Table: 2

1.6 The maximum Area Clearing Price (ACP) of Rs 12.00/kWh in IEX was observed in all 13 regions during 296 time blocks on 1st to 10th, 13th to 17th, 19th to 24th & 26th to 30th September, 2022. As there was no congestion in transmission system, the MCP for these time blocks was also Rs 12.00/kWh. Whereas, in PXIL, the maximum ACP of Rs 12.00/kWh was observed in all 13 regions during 144 time blocks on 1st to 3th & 7th to 10th September, 2022. As there was no congestion in transmission system, the MCP for these time blocks was also Rs 12.00/kWh.

1.7 The minimum ACP of Rs 1.20/kWh in IEX was observed in all 13 regions during the time block 12:30-12:45 Hrs on 15th September, 2022. As there was no congestion in transmission system, the MCP for these time-block was also Rs 1.20/kWh. Whereas, in PXIL, the minimum ACP of Rs 3.16/kWh was observed in all 13 regions during 8 time blocks on 19th September, 2022. As there was no congestion in transmission system, the MCP for these time blocks were also Rs 3.16 kWh.

3. **REAL TIME MARKET (RTM)**

The total volume of electricity transacted on both the power exchanges in Real Time Market in September, 2022 was **2,193.25 MU**, out of which, **2,192.70 MU** (99.97 %) was transacted in IEX and **0.55 MU** (0.03 %) was transacted in PXIL. The Final Scheduled Volume (FSV), Daily Avg. Market Clearing Prices (MCP) and Area Clearing Prices (ACP) in Real Time Market during the month of September, 2022 as compared with August, 2022 and September, 2021 are as given in table 3A & 3B:

(i) **Final Scheduled Volume:**

Exchange	Period	Final Scheduled Volume (MU)			
		Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
IEX	September, 2022	2192.70	49.45	103.71	73.09
	August, 2022	2265.25	52.11	104.18	73.07
	% Change (Month over Month)	-3.20	-5.10	-0.45	0.03
	September, 2021	1842.59	40.58	88.03	61.42
	% Change (Year over Year)	19.00	21.86	17.81	19.00
PXIL	September, 2022	0.55	0.10	0.25	0.18
	August, 2022	0.15	0.004	0.04	0.01
	% Change (Month over Month)	266.67	2400.00	525.00	1700.00
	September, 2021	-	-	-	-
	% Change (Year over Year)	NA	NA	NA	NA
HPX	September, 2022	-	-	-	-

-: No transaction took place

NA: Not Applicable

Table-3A

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

Exchange	Period	Prices (Rs/kWh)				
		Daily Avg. MCP (Rs/kWh)			ACP (Rs/kWh)	
		Minimum	Maximum	Average	Minimum	Maximum
IEX	September, 2022	2.52	8.21	4.79	0.12	12.00
	August, 2022	2.39	8.66	4.96	0.08	12.00
	% Change (Month over Month)	5.44	-5.20	-3.43	50.00	0.00
	September, 2021	1.66	6.89	3.84	0.50	20.00
	% Change (Year over Year)	62.05	17.13	25.52	-76.00	-40.00

PXIL	September, 2022	12.00	12.00	12.00	12.00	12.00
	August, 2022	3.20	3.25	3.21	2.58	12.00
	% Change (Month over Month)	275.00	269.23	273.83	365.12	0.00
	September, 2021	-	-	-	-	-
	% Change (Year over Year)	NA	NA	NA	NA	NA
HPX	September, 2022	-	-	-	-	-

-: No transaction took place

NA: Not Applicable

Table-3B**4. GREEN DAY AHEAD MARKET (GDAM):**

The total volume of electricity transacted in GDAM in the month of September, 2022 was **324.65 MU** (i.e. **324.40 MU** in IEX and **0.25 MU** in PXIL) at an average MCP of **Rs 5.60/kWh** and No transaction took place in 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 September, 2022 are as given in Table 4A and 4B:

i) Final Scheduled Volume in IEX:

Exchange	Segment	Period	Final Scheduled Volume (MU)			
			Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
IEX	Solar	September, 2022	198.90	2.18	21.98	6.63
		August, 2022	151.46	2.11	14.5	4.89
		% Change (Month over Month)	31.32	3.32	51.59	35.58
	Non Solar	September, 2022	125.50	2.30	8.64	4.18
		August, 2022	169.05	2.83	8.42	5.45
		% Change (Month over Month)	-25.76	-18.73	2.61	-23.30
	Hydro	September, 2022	-	-	-	-
		August, 2022	-	-	-	-
		% Change (Month over Month)	NA	NA	NA	NA
PXIL	Solar + Non Solar	September, 2022	0.25	0.25	0.25	0.25
		August, 2022	-	-	-	-
		% Change (Month over Month)	NA	NA	NA	NA
	Hydro	September, 2022	-	-	-	-
		August, 2022	-	-	-	-
		% Change (Month over Month)	NA	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table-4A**ii) Daily Avg. Market Clearing Price (MCP) and Area Clearing Price (ACP):**

Exchange	Segment	Period	Prices (Rs/kWh)				
			Daily Avg. MCP (Rs/kWh)			ACP (Rs/kWh)	
			Minimum	Maximum	Average	Minimum	Maximum
IEX		September, 2022	4.02	8.65	5.60	2.88	12.00

	Solar and Non Solar	August, 2022	3.77	8.16	5.49	1.90	12.00
		% Change (Month over Month)	6.63	6.00	2.00	51.58	0.00
		September, 2022	5.87	5.87	5.87	5.84	5.88
PXIL	Solar and Non Solar	August, 2022	-	-	-	-	-
		% Change (Month over Month)	NA	NA	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table-4B

- 4.1.** There was no transmission congestion in the power exchanges in Green Day Ahead Market during the month of September, 2022 and August, 2022.
- 4.2.** There was no real time curtailment in the power exchanges in Green Day Ahead Market during the month of September, 2022 and August, 2022, respectively.
- 4.3.** The **top 10 sellers** on the power exchanges in **Green Day Ahead Market (GDAM)** in the month of September, 2022 were **Andhra Pradesh, Karnataka, Telangana, Adani Wind Energy Kutchh Five Limited, Adani Hybrid Energy Jaisalmer Three Limited (Solar), J&K, SBSR Power Cleantech Eleven Private Limited, Adani Hybrid Energy Jaisalmer Two Limited (Solar), Ostro Energy Private Limited (OEPL) and Maharashtra**, which constituted **89.71%** of the market volume.
- 4.4.** The **top 10 buyers** on the power exchanges in **Green Day Ahead Market (GDAM)** in the month of September, 2022 were **Gujarat, DVC, Punjab, Delhi, Assam, Orissa, Daman & Diu - Dadra & Nagar Haveli, Maharashtra, ArcelorMittal Nippon steel (ESIL) and Madhya Pradesh**, which constituted **86.33 %** of the market volume.

5. TERM AHEAD MARKET (TAM)

- 5.1.** The total volume of electricity transacted on the power exchanges in Term Ahead Market in September, 2022 on delivery date basis was **1,459.44 MU**, out of which **875.43 MU** (59.98 %) was transacted on IEX, **480.06 MU** (32.89 %) was transacted on PXIL and **103.95 MU** (7.12 %) was transacted on HPX.
- 5.2.** The total volume of electricity transacted on both the power exchanges in Term Ahead Market in August, 2022 on delivery date basis was **1,463.17 MU**, out of which, **722.89 MU** (49.41%) was transacted on IEX, **486.80 MU** (33.27%) was transacted on PXIL and **253.48 MU** (17.32%) was transacted on HPX.
- 5.3.** Similarly, the total volume of electricity transacted on the power exchanges in Term Ahead Market in September, 2021 on delivery date basis was **444.04 MU**, out of which, **192.87 MU** (43.44 %) was transacted on IEX and **251.17 MU** (56.56 %) was transacted on PXIL.
- 5.4.** With respect to the total energy supplied during the month of September, 2022 in the country, the volume of electricity traded on the power exchanges in TAM on delivery date basis represents **1.15 %** of the total energy supplied. The same was **1.14 %** in August, 2022 and **0.39 %** in September, 2021.
- 5.5.** In the month of September, 2022, there was real time curtailment of **0.39 MU** under Day Ahead Contingency contract in IEX. Whereas, in PXIL there was real time curtailment of

1.75 MU under Day Ahead Contingency contract. Whereas, in HPX there was no real time curtailment occurred in TAM in September, 2022.

5.6. The comparison of total volume of electricity transacted and Average MCP in both the power exchanges in Term Ahead Market (TAM) on delivery date basis during September, 2022 with August, 2022 and September, 2021 is given in Table – 5A & 5B:

(a) September, 2022 vis- a- vis August, 2022

Exchange	Period	Final Scheduled Volume (MU)				
		Intra Day	Day Ahead Contingency	Daily or Any Day	Weekly	Total
IEX	September, 2022	6.23	729.28	28.80	111.12	875.43
	August, 2022	1.60	598.89	-	122.40	722.89
	%Change (Month over Month)	289.38	21.77	NA	-9.22	21.10
	September, 2021	0.42	68.36	124.09	-	192.87
	%Change (Year over Year)	1383.33	966.82	-76.79	NA	353.90
PXIL	September, 2022	6.79	473.27	-	-	480.06
	August, 2022	9.04	477.76	-	-	486.80
	%Change (Month over Month)	-24.89	-0.94	NA	NA	-1.38
	September, 2021	3.4	143.61	104.16	-	251.17
	%Change (Year over Year)	99.71	229.55	NA	NA	91.13
HPX	September, 2022	-	103.95	-	-	103.95
	August, 2022	-	253.48	-	-	253.48
	%Change (Month over Month)	NA	-58.99	NA	NA	-58.99

- : No transaction took place

NA: Not Applicable

Table:5A

(b) Average MCP, September, 2022 vis- a- vis August, 2022 and September, 2021

Exchange	Period	Average MCP (Rs/kWh)			
		Intra Day	Day Ahead Contingency	Daily or Any Day	Weekly
IEX	September, 2022	9.91	6.26	7.00	7.02
	August, 2022	9.33	5.74	-	5.49
	%Change (Month over Month)	6.22	9.06	NA	27.87
	September, 2021	8.72	4.55	3.80	-
	%Change Year over Year)	13.65	37.58	84.21	NA
PXIL	September, 2022	9.08	5.93	-	-
	August, 2022	11.52	5.30	-	-
	%Change (Month over Month)	-21.18	11.89	NA	NA
	September, 2021	6.3	4.53	4.03	-

	%Change (Year over Year)	44.13	30.91	NA	NA
HPX	September, 2022	-	7.16	-	-
	August, 2022	-	5.37	-	-
	%Change (Month over Month)	NA	33.33	NA	NA

-: No transaction took place

NA: Not Applicable

Table: 5B

6. GREEN TERM AHEAD MARKET (GTAM):

The total volume of electricity transacted in the IEX & PXIL in GTAM on delivery date basis was **155.18 MU** (19.54 MU in Solar, 39.74 MU in Non-Solar and 95.90 MU in Hydro), respectively. **No transaction of electricity happened in GTAM in HPX.**

The total volume of electricity transacted in in GTAM in Day Ahead Contingency, Intraday, Daily/ Anyday and Weekly contracts during September, 2022 on delivery date basis has basis 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 in IEX & PXIL during September, 2022 and its comparison with August, 2022 and September, 2021 has 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	Day Ahead Contingency	September, 2022	11.71	0.10	4.00	1.67
		August, 2022	16.66	0.15	3.67	2.08
		%Change (Month over Month)	-29.71	-33.33	8.99	-19.71
		September, 2021	230.74	1.54	15.42	7.69
		%Change (Year over Year)	-94.93	-93.51	-74.06	-78.28
	Intraday	September, 2022	-	-	-	-
		August, 2022	1.16	1.16	1.16	1.16
		%Change (Month over Month)	NA	NA	NA	NA
		September, 2021	3.37	0.03	0.65	0.11
		%Change (Year over Year)	NA	NA	NA	NA
	Daily/Anyday	September, 2022	3.90	0.30	0.40	0.35
		August, 2022	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		September, 2021	36.12	2.52	4.08	3.61
		%Change (Year over Year)	-89.20	-88.10	-90.20	-90.30
	Weekly	September, 2022	-	-	-	-
		August, 2022	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		September, 2021	5.60	0.40	0.40	0.40

		%Change (Year over Year)	NA	NA	NA	NA
PXIL	Day Ahead Contingency	September, 2022	3.93	1.80	2.13	1.96
		August, 2022	20.29	0.06	4.80	1.19
		%Change (Month over Month)	-80.63	2900.00	-55.63	64.71
		September, 2021	5.53	0.84	1.01	0.92
		%Change (Year over Year)	-28.93	114.29	110.89	113.04
	Intraday	September, 2022	-	-	-	-
		August, 2022	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		September, 2021	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Daily/Anyday	September, 2022	-	-	-	-
		August, 2022	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		September, 2021	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Weekly	September, 2022	-	-	-	-
		August, 2022	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		September, 2021	-	-	-	-
		%Change (Year over Year)	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(Rs/kW)		
			Minimum	Maximum	Average
	Day Ahead Contingency	September, 2022	3.50	7.04	4.95
		August, 2022	3.00	4.70	3.43
		%Change (Month over Month)	16.67	49.79	44.31
		September, 2021	3.25	4.84	3.91
		%Change (Year over Year)	7.69	45.45	26.60
	Intraday	September, 2022	-	-	-
		August, 2022	3.05	3.05	3.05
		%Change (Month over Month)	NA	NA	NA
		September, 2021	3.00	4.02	3.51
		%Change (Year over Year)	NA	NA	NA
	Daily/Anyday	September, 2022	4.50	4.60	4.55
		August, 2022	-	-	-
		%Change (Month over Month)	NA	NA	NA
		September, 2021	4.60	4.60	4.60
		%Change (Year over Year)	-2.17	0.00	-1.09

	Weekly	September, 2022	-	-	-
		August, 2022	-	-	-
%Change (Month over Month)		NA	NA	NA	
September, 2021		4.10	4.20	4.15	
%Change (Year over Year)		NA	NA	NA	
PXIL	Day Ahead Contingency	September, 2022	3.50	3.50	3.50
		August, 2022	3.13	6.00	4.17
		%Change (Month over Month)	11.82	-41.67	-16.07
		September, 2021	3.40	5.53	3.99
		%Change (Year over Year)	2.94	-36.71	-12.28
	Intraday	September, 2022	-	-	-
		August, 2022	-	-	-
		%Change (Month over Month)	NA	NA	NA
		September, 2021	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Daily/Anyday	September, 2022	-	-	-
		August, 2022	-	-	-
		%Change (Month over Month)	NA	NA	NA
		September, 2021	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Weekly	September, 2022	-	-	-
		August, 2022	-	-	-
		%Change (Month over Month)	NA	NA	NA
		September, 2021	-	-	-
		%Change (Year over Year)	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table-6B

- In September, 2022, there was transmission congestion of **0.57 MU** under Day Ahead Contingency contract in GTAM (Solar) in IEX. Whereas, no transmission congestion in GTAM (Solar) in PXIL.
- In September, 2022, there was no real time curtailment in GTAM (Solar) in both IEX & PXIL.

6.2. Non-Solar Energy Segment in GTAM

The Final Scheduled Volume and the Price of electricity transacted in GTAM in IEX & PXIL during September, 2022 and its comparison with August, 2022 has been shown in Table 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	Day Ahead Contingency	September, 2022	17.40	0.10	2.11	0.79
		August, 2022	15.23	0.04	2.01	0.51

		%Change (Month over Month)	14.25	150.00	4.98	54.90
		September, 2021	205.28	0.24	12.87	6.84
		%Change (Year over Year)	-91.52	-58.33	-83.61	-88.45
		September, 2022	-	-	-	-
	Intraday	August, 2022	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		September, 2021	2.89	0.24	1.20	0.72
		%Change (Year over Year)	NA	NA	NA	NA
		September, 2022	-	-	-	-
	Daily/Anyday	August, 2022	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		September, 2021	59.14	0.19	6.31	1.97
		%Change (Year over Year)	NA	NA	NA	NA
		September, 2022	0.80	0.11	0.11	0.11
	Weekly	August, 2022	1.93	0.07	0.07	0.07
		%Change (Month over Month)	-58.55	57.14	57.14	57.14
		September, 2021	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
		September, 2022	21.55	0.12	2.31	0.74
PXIL	Day Ahead Contingency	August, 2022	35.61	0.08	4.40	1.27
		%Change (Month over Month)	-39.48	50.00	-47.50	-41.73
		September, 2021	47.53	0.65	2.78	1.70
		%Change (Year over Year)	-54.66	-81.54	-16.91	-56.47
		September, 2022	-	-	-	-
	Intraday	August, 2022	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		September, 2021	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
		September, 2022	-	-	-	-
	Daily/Anyday	August, 2022	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		September, 2021	1.30	0.14	0.14	0.14
		%Change (Year over Year)	NA	NA	NA	NA
		September, 2022	-	-	-	-
	Weekly	August, 2022	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		September, 2021	-	-	-	-
		September, 2022	-	-	-	-

		%Change (Year over Year)	NA	NA	NA	NA
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-: No transaction took place

NA: Not Applicable

Table-6C

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

Exchange	Non- Solar Energy Contract	Period	Prices(Rs/kW)		
			Minimum	Maximum	Average
IEX	Day Ahead Contingency	September, 2022	3.82	7.92	6.19
		August, 2022	3.69	9.77	5.77
		%Change (Month over Month)	3.52	-18.94	7.28
		September, 2021	3.55	6.09	4.64
		%Change (Year over Year)	7.61	30.05	33.41
	Intraday	September, 2022	-	-	-
		August, 2022	-	-	-
		%Change (Month over Month)	NA	NA	NA
		September, 2021	4.80	5.90	5.29
		%Change (Year over Year)	NA	NA	NA
	Daily/Anyday	September, 2022	-	-	-
		August, 2022	-	-	-
		%Change (Month over Month)	NA	NA	NA
		September, 2021	4.70	5.80	5.22
		%Change (Year over Year)	NA	NA	NA
	Weekly	September, 2022	5.70	5.70	5.70
		August, 2022	5.80	5.80	5.80
		%Change (Month over Month)	-1.72	-1.72	-1.72
		September, 2021	-	-	-
		%Change (Year over Year)	NA	NA	NA
PXIL	Day Ahead Contingency	September, 2022	4.22	9.67	6.45
		August, 2022	3.68	8.84	5.54
		%Change (Month over Month)	14.67	9.39	16.43
		September, 2021	3.79	7.55	4.79
		%Change (Year over Year)	11.35	28.08	34.66
	Intraday	September, 2022	-	-	-
		August, 2022	-	-	-
		%Change (Month over Month)	NA	NA	NA
		September, 2021	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Daily/Anyday	September, 2022	-	-	-
		August, 2022	-	-	-
		%Change (Month over Month)	NA	NA	NA
		September, 2021	4.35	4.35	4.35
		%Change (Year over Year)	NA	NA	NA

	Weekly	September, 2022	-	-	-
		August, 2022	-	-	-
		% Change (Month over Month)	NA	NA	NA
		September, 2021	-	-	-
		% Change (Year over Year)	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table-6D

- In September, 2022, there was no transmission congestion in GTAM (Non Solar) in both IEX and PXIL.
- In September, 2022, there was no real time curtailment in GTAM (Non Solar) in both IEX & PXIL.

6.3. Hydro Energy Segment in GTAM- For the Hydro Energy Segment in GTAM, Final Scheduled Volume and Daily Average MCP in the Day Ahead Contingency, Intraday, Daily/Anyday and Weekly contracts during September, 2022 on delivery date basis are shown in Tables 6E & 6F.

Hydro Energy Contract in GTAM

(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	September, 2022	95.90	2.02	3.99	3.20
		August, 2022	80.57	1.10	3.85	2.60
		% Change (Month over Month)	19.03	83.64	3.64	23.08
	Intraday	September, 2022	-	-	-	-
		August, 2022	0.03	0.03	0.03	0.03
		% Change (Month over Month)	NA	NA	NA	NA
	Daily/Anyday	September, 2022	-	-	-	-
		August, 2022	-	-	-	-
		% Change (Month over Month)	NA	NA	NA	NA
	Weekly	September, 2022	-	-	-	-
		August, 2022	-	-	-	-
		% Change (Month over Month)	NA	NA	NA	NA
PXIL	Day Ahead Contingency	September, 2022	-	-	-	-
		August, 2022	5.45	0.16	0.83	0.45
		% Change (Month over Month)	NA	NA	NA	NA
	Intraday	September, 2022	-	-	-	-
		August, 2022	-	-	-	-
		% Change (Month over Month)	NA	NA	NA	NA
	Daily/Anyday	September, 2022	-	-	-	-
		August, 2022	-	-	-	-
		% Change (Month over Month)	NA	NA	NA	NA
	Weekly	September, 2022	-	-	-	-

		August, 2022	-	-	-	-
		%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(Rs/kW)		
			Minimum	Maximum	Average
IEX	Day Ahead Contingency	September, 2022	3.33	9.35	5.78
		August, 2022	3.80	7.95	5.21
		%Change (Month over Month)	-12.37	17.61	10.94
	Intraday	September, 2022	-	-	-
		August, 2022	3.72	3.72	3.72
		%Change (Month over Month)	NA	NA	NA
	Daily/Anyday	September, 2022	-	-	-
		August, 2022	-	-	-
		%Change (Month over Month)	NA	NA	NA
	Weekly	September, 2022	-	-	-
		August, 2022	-	-	-
		%Change (Month over Month)	NA	NA	NA
		August, 2022	2.89	4.78	3.68
		%Change (Month over Month)	NA	NA	NA
	Intraday	September, 2022	-	-	-
		August, 2022	-	-	-
		%Change (Month over Month)	NA	NA	NA
	Daily/Anyday	September, 2022	-	-	-
		August, 2022	-	-	-
		%Change (Month over Month)	NA	NA	NA
	Weekly	September, 2022	-	-	-
		August, 2022	-	-	-
		%Change (Month over Month)	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table – 6F

- In September, 2022, there was no transmission congestion in GTAM (Hydro) in the power exchanges.
- In September, 2022, there was no real time curtailment in GTAM (Hydro) in the power exchanges.

7. **Bilateral Transactions:**

The total volume of electricity transacted through **Bilateral transactions** in the month of September, 2022 was **8,011.73MU**. The total buy volume of electricity transacted in bilateral market through direct transactions and traders in the month of September, 2022 were **3155.38**

MU and **4856.35 MU** respectively. The details of Bilateral transactions of Electricity happened during September, 2022 is shown in Table Below:

September, 2022	Direct	Traders	Total Bilateral Transaction (MU)
Total	3155.38	4856.35	8011.73
Minimum	0.22	0.31	-
Maximum	968.86	818.84	-

Table -7A

The region-wise maximum/ minimum volume of electricity transacted bilaterally during September, 2022 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	304.86	871.93	610.55	1123.95	1939.57	2337.94	292.23	427.76	8.17	94.78
Minimum	0.22	5.61	25.72	5.98	8.39	0.46	0.70	4.71	8.17	0.31
Maximum	191.75	429.74	391.75	474.95	968.86	818.84	269.96	331.18	8.17	55.07

Table-7B

- 7.1. The top 5 buyers** on bilateral transaction through direct transactions in the month of September, 2022 were **PUNJAB, HARYANA, MAHARASHTRA, TELANGANA** and **UTTARPRADESH**, which constituted **75.03 %** of the market volume. Whereas **top 5 buyers** on bilateral transaction through traders in the month of September, 2022 were **PUNJAB, DELHI, HARYANA, MAHARASHTRA** and **GUJARAT**, which constituted **60.80 %** of the market volume. [Annexure III]
- 7.2. The top 5 sellers** on bilateral transaction through direct transactions in the month of September, 2022 were **MP, J&K and LADAKH, Adhunik Power, AHEJ4L_S_FTG1** and **HIMACHAL**, which constituted **59.19 %** of the market volume. Whereas **top 5 sellers** on bilateral transaction through traders in the month of September, 2022 were **HIMACHAL, TEESTA III TUL, RPREL, KARNATAKA** and **SEILP2**, which constituted **42.45 %** of the market volume. [Annexure III]
- 7.3. Deviation Volume** - The volume of Deviation observed in the month of September, 2022 in import and export were **2,415.36 MU** and **2,466.30 MU** respectively. The total volume of Deviation observed in the month of September, 2022 can be taken as **2,440.83 MU**.
- 7.4.** A comparison of volume of electricity transacted through both the Power Exchanges together in DAM, TAM, RTM, GTAM, GDAM (on delivery date basis) with Bilateral transactions and Deviation in the month of September, 2022 is shown in **Figure 1:**

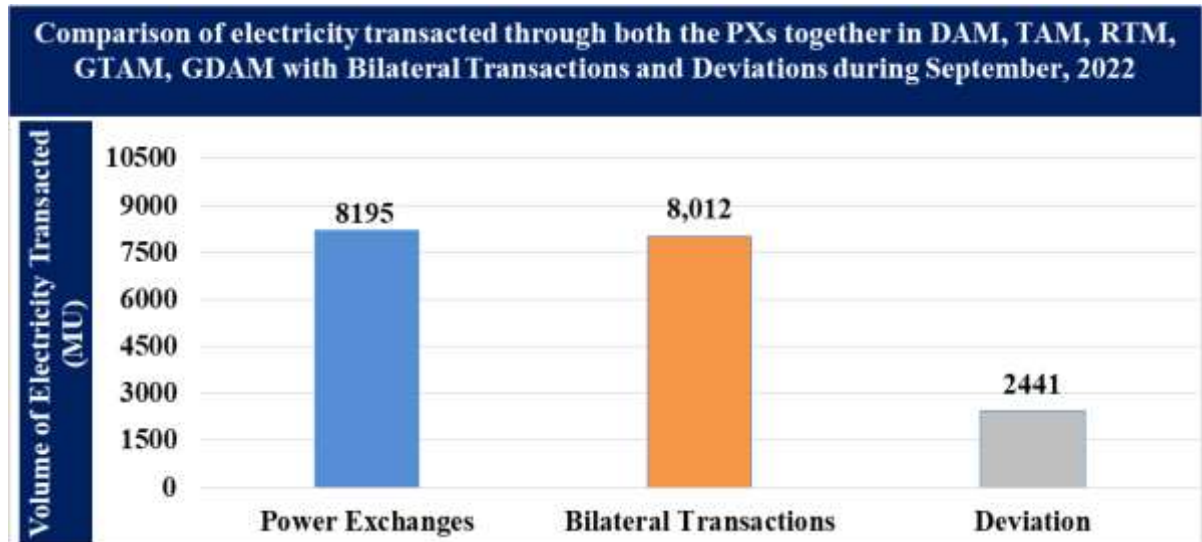
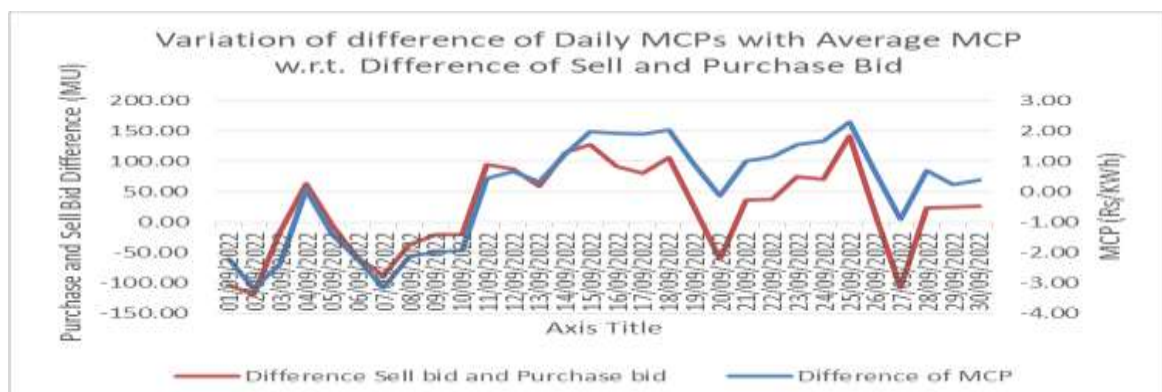


Figure -1

8. Analysis of movement of prices observed in DAM during September, 2022

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 September, 2022 month. The observations made are as under:

- 8.1. 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.
- 8.2. 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 only significant variable were the Coal Generation, Hydro Generation and Total Purchase Bid, whereas all the other variables were found to be insignificant. Further, the regression analysis revealed that the elasticity of the Daily Avg. MCP with respect to Total Purchase Bid was **0.54**. Ineffect, the regression reveals that the most important variable which determines Daily Avg. MCP is the total purchase bid in the month of September, 2022.
- 8.3. The variation of difference of Daily Avg. MCPs with Average MCP w.r.t Difference of Sell and Purchase bid is Shown below:



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

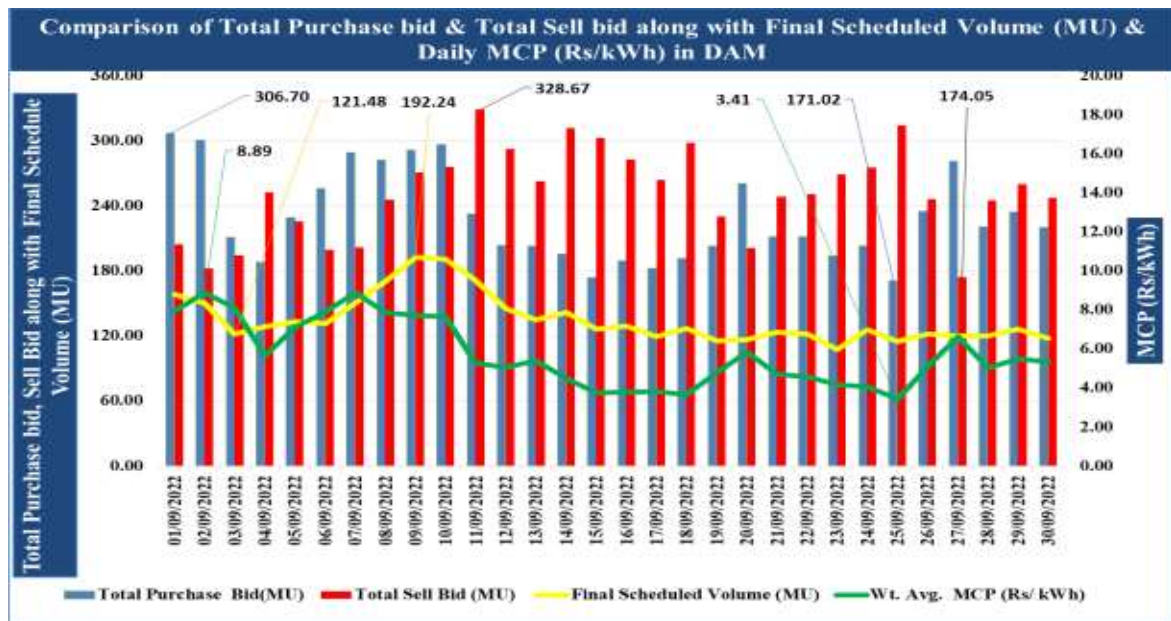


Figure -2

8.5. Invariably, the Final Scheduled Volume (MU) and the Daily Avg. MCP (Rs/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 September, 2022, it is observed that on first Sunday (04th September, 2022), FSV showed increasing trend in comparison to first Saturday (03th September, 2022), on second Monday (12th September, 2022), FSV showed decreasing trend in comparison to First Sunday (11th September, 2022), on third Sunday (18th September, 2022), FSV showed increasing trend in comparison to third Saturday (17th September, 2022). The detailed analysis on this is given at **Appendix-I**.

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

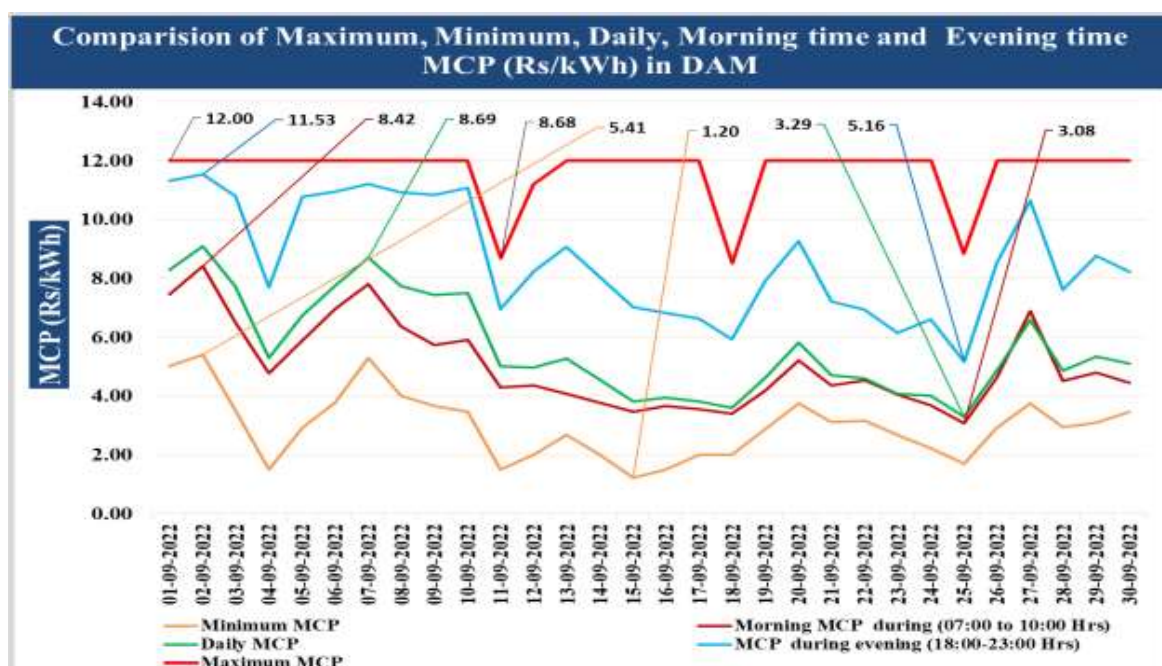


Figure -3

- 8.7. The Market Clearing Price duration curves for time block wise MCP for the month of September, 2022 is shown in **Figure 4**, whereas the time block wise MCP duration curve for the period 1st April, 2022 to 30th September, 2022 is shown in **Figure 5**.

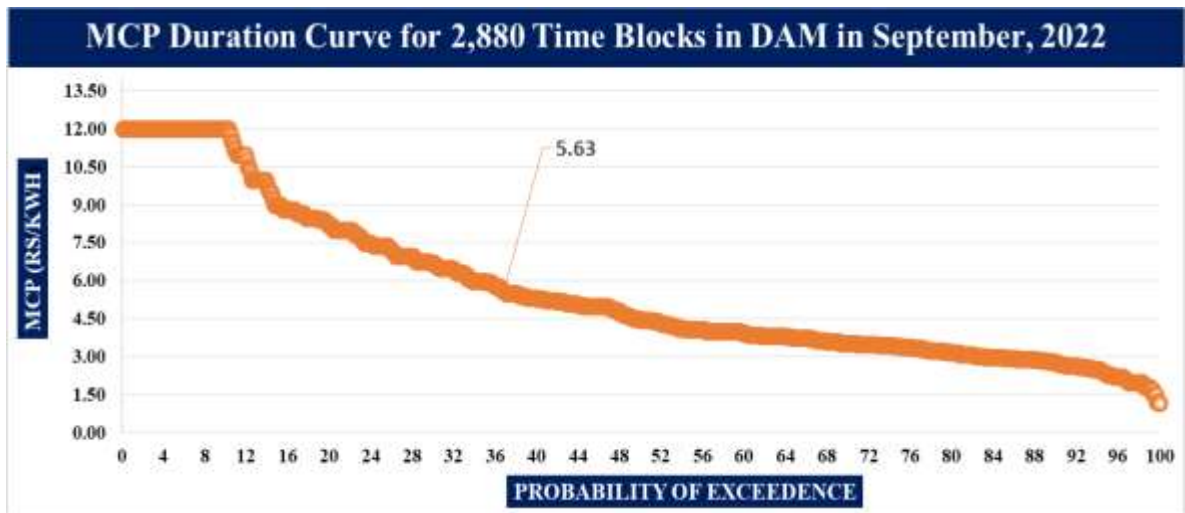


Figure-4

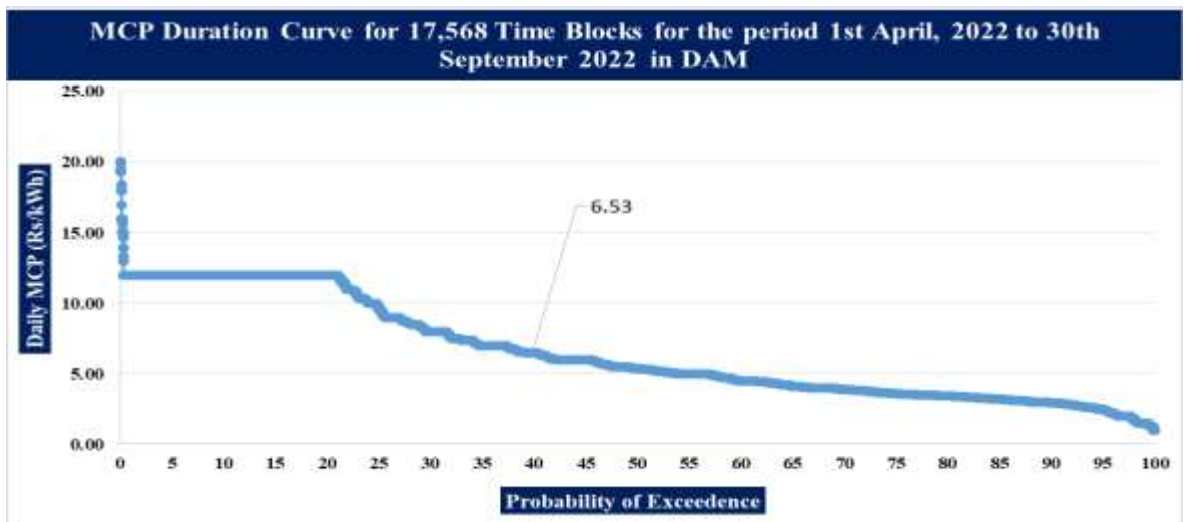


Figure-5

- 8.8. It can be seen in figure 4 above that in the MCP duration curve of September, 2022, for 36.50 % of the time MCP was above average MCP of the month (i.e. **Rs. 5.63/kWh**) and almost 63.50 % 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, 2022 to 30th September, 2022 (figure-5), that for 40.00 % of the time the MCP was above the average MCP for the period (i.e. **Rs. 6.53/kWh**) and for 60.00 % of the time the Daily Avg. MCP was below the average MCP for the period.
- 8.9. 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 8.1 and 8.2 above**.
- 8.10. In September, 2022, the maximum FSV occurred mostly during the **time period 07-08 Hrs** (on 16 no. of days). Whereas, the maximum MCP occurred mostly during the **time period**

18-19 Hrs (on 18 no. of days). Similarly, the minimum FSV occurred mostly during the **time period 04-08 Hrs** (on 9 no. of days). Whereas, the minimum MCP occurred mostly during the **time period 13-14 Hrs** (on 20 no. of days). **[Annexure VI]**

- 8.11.** In the month of September, 2022, there was no congestion in IEX and PXIL. Further, in the month of August, 2022, there was no congestion in IEX and PXIL, respectively. In the month of September, 2021 also, there was no transmission congestion in IEX and PXIL, respectively. No transaction of electricity happened in HPX in DAM during September, 2022.
- 8.12.** In the month of September, 2022, there was **no** real time curtailment in IEX and PXIL, respectively. Further, in the month of August, 2022 also, there was no real time curtailment both IEX and PXIL. In the month of September, 2021 also, there was no real time curtailment in both IEX and PXIL. No transaction of electricity happened in HPX in DAM during September, 2022.
- 8.13.** The **top 10 sellers** on the power exchanges in **Day Ahead Market (DAM)** in the month of **September, 2022** were **Telangana, Uttar Pradesh, Karnataka, NVVN (SNA) – NEA, Kerala, Bihar, Teesta -3, Jindal Power Ltd. Stg-II, West Bengal and Madhya Pradesh**, which constituted **59.99 %** of the market volume.**[Annexure VII].**
- 8.14.** The **top 10 purchasers** on the power exchanges in **Day Ahead Market (DAM)** in the month of September, 2022 **Gujarat, Rajasthan, Uttar Pradesh, Punjab, Haryana, West Bengal, Telangana, Andhra Pradesh, Daman & Diu - Dadra & Nagar Haveli and Maharashtra**, which constituted **80.19 %** of the market volume. **[Annexure VII]**
- 8.15.** The total volume of electricity purchased by Discoms/Licensees in DAM in the month of September, 2022 was **3,786.28 MU**, which constituted **93.20 %** of total volume of electricity purchased on both the power exchanges.
- 8.16.** Similarly, the total volume of electricity sold by Discoms/Licensees in DAM in the month of September, 2022 was **2,682.98 MU**, which constituted **66.04%** of total volume of electricity sold on both the power exchanges.

9. Analysis of movement of prices observed in Real Time Market (RTM) transactions in September, 2022

- 9.1.** 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 variables was the Total Purchase Bid, Total Sell Bid, Hydro Generation and Coal Generation, whereas all the other variables were found to be insignificant. Further, the regression analysis revealed that the elasticity of the Daily Avg. MCP with respect to Total Purchase Bid was **0.93**. Ineffect, the regression reveals that the most important variable which determines Daily Avg. MCP is the total purchase bid in the month of September, 2022.

- 9.2. 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 9.1 above**.
- 9.3. The Total Purchase Bid, Total Sell Bid, Daily Avg. MCP and FSV are shown in Figure-6 below:

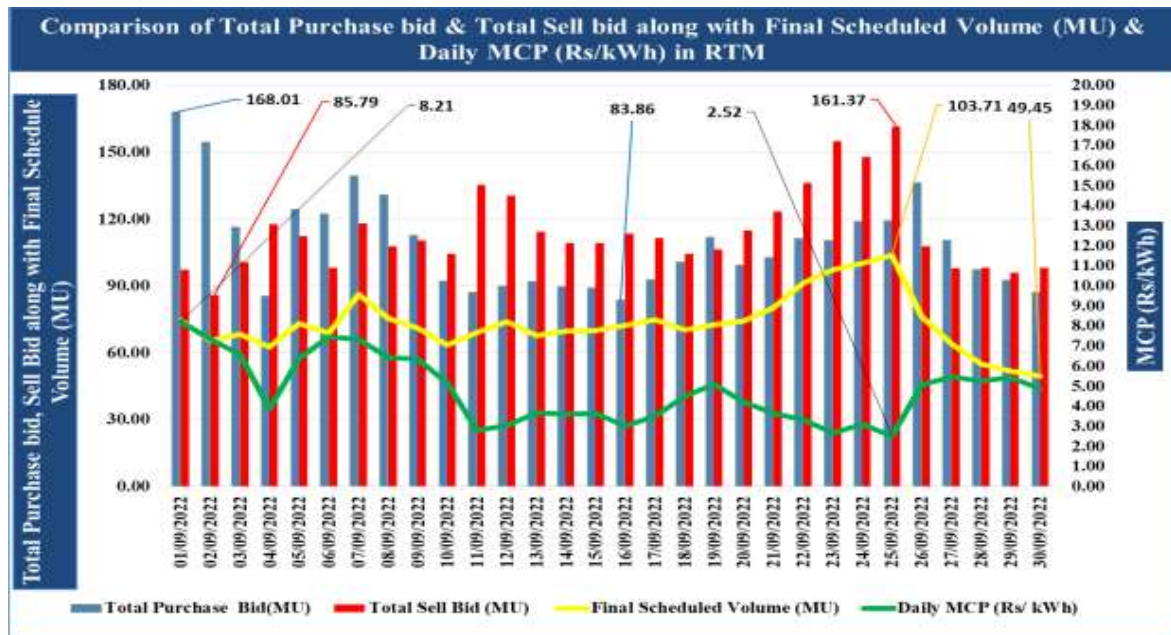


Figure-6

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

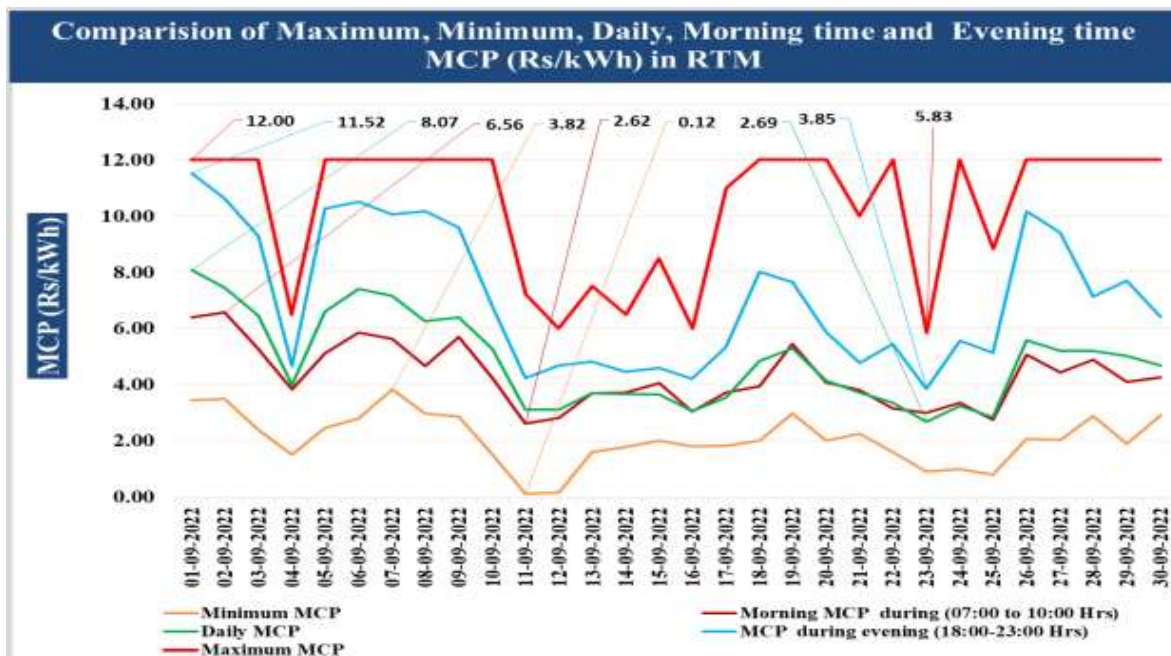


Figure-7

- 9.5. The Market Clearing Price duration curves for time block wise MCP for the month of September, 2022 is shown in **Figure 8**, whereas the day wise MCP duration curve for the period 1st April, 2022 to 30th September, 2022 is shown in **Figure 9**.

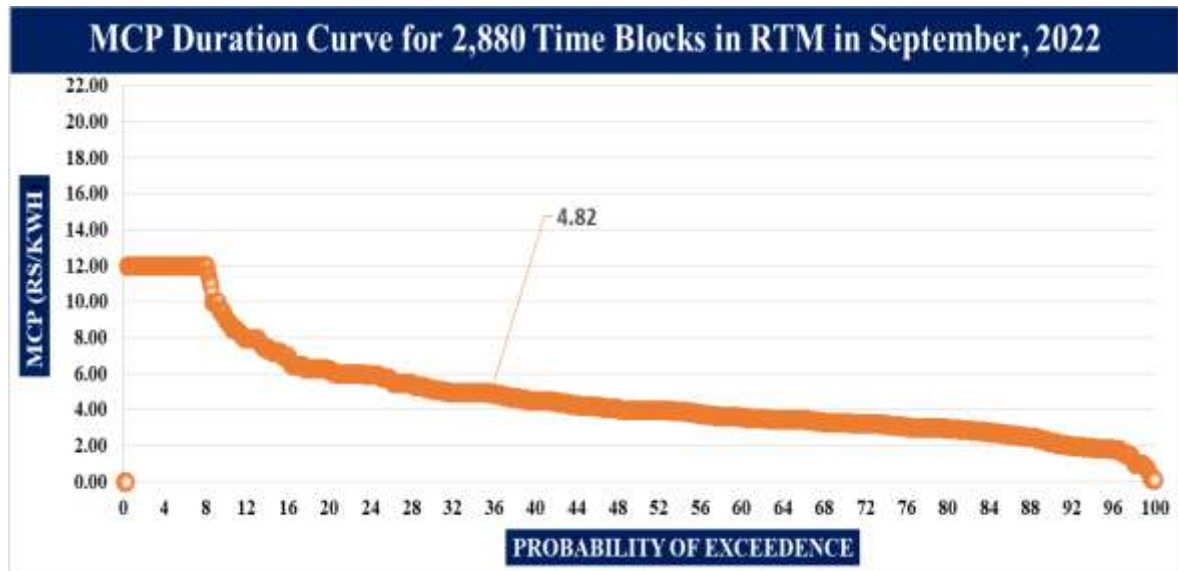


Figure-8

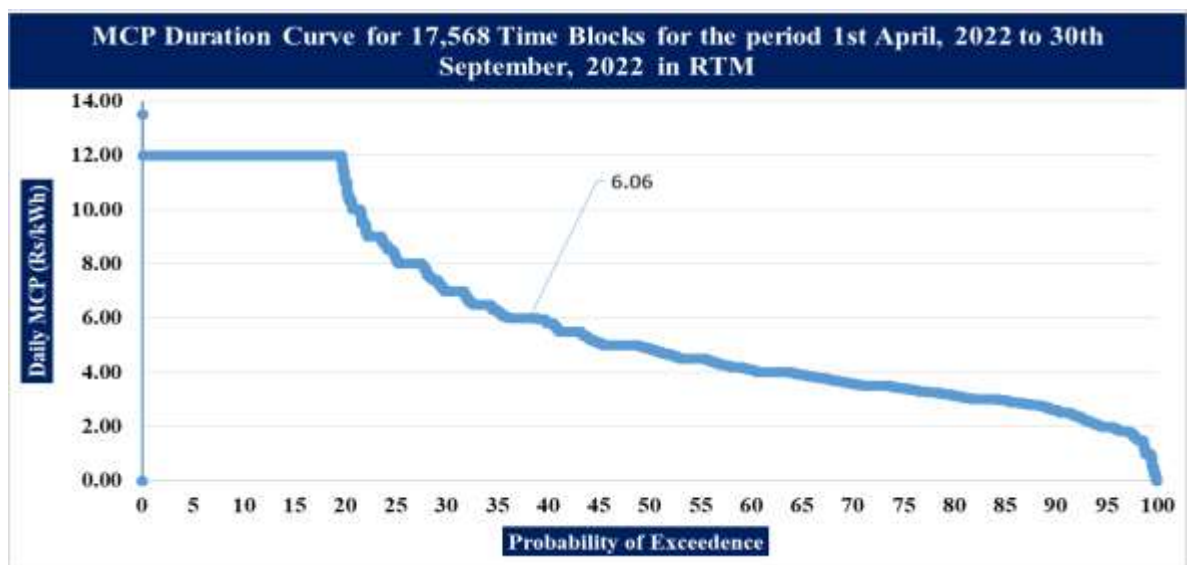


Figure-9

- 9.6. It can be seen in figure 8 above that in the MCP duration curve of September, 2022, for 36.00 % of the time the MCP was above the average MCP of the month (i.e. **Rs. 4.82/kWh**) and for 64.00 % 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, 2022 to 30th September, 2022 (figure 9) that, for 38.00 % of the time the Daily Avg. MCP was above the average MCP for the period (i.e. **Rs. 6.06/kWh**) and for 62.00 % of the time the Daily Avg. MCP was below the average MCP for the period.
- 9.7. In September, 2022, the maximum FSV occurred mostly during the **time period 14-16 Hrs** (on 11 no. of days). Whereas, the maximum MCP also occurred mostly during the **time period 18-19 Hrs** (on 13 no. of days). Similarly, the minimum FSV occurred mostly during the **time period 4-6 Hrs** (on 6 no. of days). Whereas, the minimum MCP occurred mostly during the **time period 13-14 Hrs** (on 20 no. of days). [Annexure X]

- 9.8.** There was **no** real time curtailment in IEX in Real Time Market (RTM) during September, 2022 and August, 2022, whereas, **no** real time curtailment in PXIL during September, 2022 and no transaction of electricity happened in PXIL during August, 2022. Similarly, in September, 2021, there was no real time curtailment in IEX, whereas, no transaction of electricity happened in PXIL during September, 2021 in Real Time Market (RTM). No transaction of electricity happened in HPX in RTM during September, 2022.
- 9.9.** In the month of September, 2022, there was congestion of **5.79 MU** in the transmission system in IEX on 6 days (08th to 12th & 25th September, 2022), whereas, in PXIL, there was no congestion in September, 2022. Further, in the month of August, 2022, there was congestion of **0.35 MU** in the transmission system in IEX, whereas, in PXIL, there was no congestion. In the month of September, 2021, there was congestion of **2.11 MU** in transmission system in IEX in Real Time Market, whereas, in PXIL, no transaction of electricity happened in September, 2021 in Real Time Market. No transaction of electricity happened in HPX in RTM during September, 2022.
- 9.10.** The **top 10 sellers** on the power exchanges in **Real Time Market (RTM) in the month of September, 2022 were Madhya Pradesh, Bihar, Orissa, Kerala, Himachal Pradesh, Telangana, Karnataka, Uttar Pradesh, Andhra Pradesh and Delhi, which constituted 67.73% of the market volume. [Annexure XI]**
- 9.11.** The **top 10 buyers** on the power exchanges in **Real Time Market (RTM) in the month of September, 2022 were Rajasthan, Telangana, Uttar Pradesh, Punjab, Maharashtra, Orissa, DVC, West Bengal, Haryana and Gujarat, which constituted 79.39% of the market volume. [Annexure XI]**
- 9.12.** The total volume of electricity purchased by Discoms/Licensees in RTM in the month of September, 2022 was **2129.02 MU**, which constituted **97.07 %** of total volume of electricity purchased on both the power exchanges.
- 9.13.** Similarly, the total volume of electricity sold by Discoms/Licensees in RTM in the month of September, 2022 was **1958.64 MU**, which constituted **89.30 %** of total volume of electricity sold on both 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

Annexure-I
Final Scheduled Volume, Average MCP and Real-Time Curtailment in Day Ahead Market (DAM) for the months of April, 2022 to September, 2022 of IEX and PXIL

Quarter	Months	Final Scheduled Volume (MU)		Market Clearing Price (Rs/kWh)		Real Time Curtailment (MU)	
		IEX	PXIL	IEX	PXIL	IEX	PXIL
Quarter -I	April, 2022	4,113.65	0	10.06	0	8.86	0
	May, 2022	3,172.50	13.02	6.80	4.30	0	0
	June, 2022	4,084.99	116.20	6.49	6.61	0	0
Total Quarter -I	April - June, 2022	11,371.14	129.22	7.87	6.38	8.86	0
Quarter -II	July, 2022	3,516.65	31.78	5.50	5.01	0	0
	August, 2022	3,528.70	10.12	5.26	6.42	0	0
	September, 2022	4,049.65	12.89	5.73	6.19	0	0
Total Quarter -II	July - September, 2022	11,095.00	54.79	5.51	5.55	0.00	0.00
Total April, 2022 – September, 2022		22,466.14	184.01	6.70	6.13	8.86	0.00

Annexure-II**Final Scheduled Volume in Term Ahead Market (TAM) for the months of April, 2022 to September, 2022 of IEX, PXIL and HPX (Delivery date basis)**

Quarter	Months	Final Scheduled Volume (MU)			
		IEX	PXIL	HPX	Total
Quarter -I	April, 2022	1,171.50	1,746.85	-	2,918.35
	May, 2022	1,188.60	1,157.77	-	2,346.37
	June, 2022	759.03	759.58	-	1,518.61
Total Quarter -I	April - June, 2022	3,119.13	3,664.20	-	6,783.33
Quarter-II	July, 2022	439.81	531.89	221.96	1,193.66
	August, 2022	722.89	486.80	253.48	1,463.17
	September, 2022	875.43	480.06	103.95	1,459.44
Total Quarter -II	July-September, 2022	2,038.13	1,498.75	579.39	4,116.27
Total April, 2022 - September, 2022		5,157.26	5,162.95	579.39	1,0899.6

Top Five Entities (Buyers and Sellers) in Bilateral transactions in the month of September, 2022

(i) Top five Buyers in Bilateral transactions

Entity Name	Direct		Entity Name	Through Traders	
	(MU)	Percent		(MU)	Percent
PUNJAB	968.862	30.71%	PUNJAB	818.839	16.86%
HARYANA	540.580	17.13%	DELHI	615.535	12.67%
MAHARASHTRA	391.752	12.42%	HARYANA	611.630	12.59%
TELANGANA	269.960	8.56%	MAHARASHTRA	474.954	9.78%
UTTARPRADESH	196.264	6.22%	GUJARAT	431.779	8.89%
Total Volume	2367.42	75.03%	Total Volume	2952.74	60.80%
Total Volume in Bilateral	3155.38		Total Volume in Bilateral	4856.35	

(ii) Top five Sellers in Bilateral transactions

Entity Name	Direct		Entity Name	Through Traders	
	(MU)	Percent		(MU)	Percent
MP	1282.583	39.39%	HIMACHAL	624.244	13.13%
Adhunik Power	135.972	4.18%	RPREL	329.209	6.92%
AHEJ4L_S_FTG1	118.298	3.63%	KARNATAKA	292.346	6.15%
HIMACHAL	98.816	3.03%	SEILP2	281.827	5.93%
MP	1282.583	39.39%	HIMACHAL	624.244	13.13%
Total Volume	1927.39	59.19%	Total Volume	2019.06	42.45%
Total Volume in Bilateral	3256.04		Total Volume in Bilateral	4755.90	

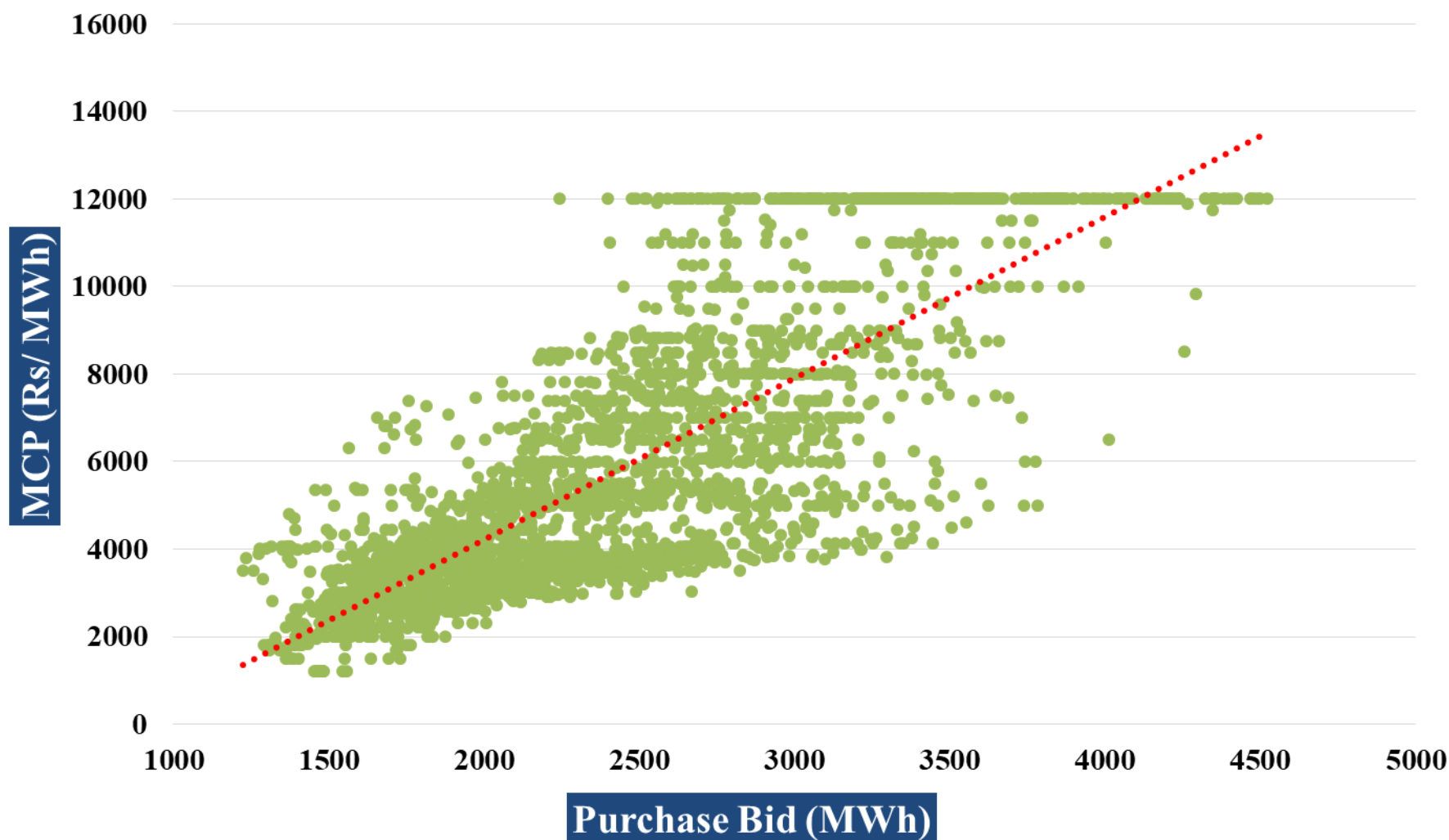
Annexure-IV**Evening, Day, Night, Morning, Maximum, Minimum, Average MCP (Rs/kWh) and Final Scheduled Volume (MU) in DAM**

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)
01-09-2022	7.45	5.64	11.31	8.80	12.00	5.00	8.28	157.93
02-09-2022	8.42	6.53	11.53	9.91	12.00	5.41	9.08	150.30
03-09-2022	6.49	5.10	10.78	8.39	12.00	3.50	7.71	121.48
04-09-2022	4.77	2.65	7.70	6.16	12.00	1.50	5.29	128.21
05-09-2022	5.88	4.58	10.76	5.91	12.00	2.91	6.73	132.72
06-09-2022	6.94	5.79	10.95	7.36	12.00	3.76	7.73	131.26
07-09-2022	7.79	7.04	11.20	8.70	12.00	5.30	8.69	150.09
08-09-2022	6.35	5.76	10.92	7.82	12.00	4.00	7.75	169.92
09-09-2022	5.74	4.83	10.84	8.05	12.00	3.65	7.42	192.24
10-09-2022	5.90	4.43	11.09	8.42	12.00	3.46	7.50	190.60
11-09-2022	4.29	2.45	6.96	6.34	8.68	1.50	5.02	171.40
12-09-2022	4.36	3.01	8.23	4.44	11.20	2.00	4.96	145.16
13-09-2022	4.08	3.26	9.08	4.72	12.00	2.68	5.27	134.94
14-09-2022	3.77	2.57	8.03	3.98	12.00	1.99	4.55	141.67
15-09-2022	3.45	1.83	7.01	3.26	12.00	1.20	3.81	126.03
16-09-2022	3.65	2.54	6.82	3.05	12.00	1.50	3.94	129.15
17-09-2022	3.54	2.69	6.63	2.67	12.00	1.99	3.81	119.58
18-09-2022	3.40	2.38	5.92	2.92	8.50	2.00	3.59	126.85
19-09-2022	4.19	3.08	7.90	3.59	12.00	2.87	4.62	115.49
20-09-2022	5.21	4.08	9.26	4.97	12.00	3.74	5.82	116.36
21-09-2022	4.35	3.53	7.22	3.92	12.00	3.11	4.70	123.46
22-09-2022	4.52	3.41	6.92	3.86	12.00	3.16	4.60	121.83
23-09-2022	4.06	3.10	6.15	3.25	12.00	2.67	4.07	107.43
24-09-2022	3.69	2.66	6.59	3.30	12.00	2.22	4.00	125.29
25-09-2022	3.08	1.98	5.16	3.10	8.83	1.70	3.29	114.97
26-09-2022	4.61	3.28	8.53	3.43	12.00	2.91	4.86	121.54
27-09-2022	6.88	4.50	10.65	4.96	12.00	3.74	6.57	120.08
28-09-2022	4.51	3.32	7.60	4.22	12.00	2.94	4.85	119.93
29-09-2022	4.79	3.60	8.76	4.46	12.00	3.08	5.34	126.16
30-09-2022	4.43	3.82	8.21	4.07	12.00	3.45	5.10	117.58
Maximum	8.42	7.04	11.53	9.91	12.00	5.41	9.08	192.24
Minimum	3.08	1.83	5.16	2.67	8.50	1.20	3.29	107.43
Average	5.02	3.78	8.62	5.27	11.64	2.96	5.63	134.99

MCP: Market Clearing Price (Rs/kWh)

FSV: Final Scheduled Volume (MU)

Comparison of MCP w.r.t. Purchase Bid for 2,880 Time Blocks during the month of September, 2022 in DAM



Time Blocks during the Month [96 time blocks in a day x 30 days = 2,880]

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 (Rs/kWh)		Min FSV (MU)		Min. MCP (Rs/kWh)	
	Time Block	Value	Time Block	Value	Time Block	Value	Time Block	Value
01-09-2022	12:15 - 12:30	2.11	18:00 - 18:15	12.00	19:15 - 19:30	0.90	13:00 - 13:15	5.00
02-09-2022	05:45 - 06:00	1.99	06:15 - 06:30	12.00	19:30 - 19:45	1.00	13:00 - 13:15	5.41
03-09-2022	00:30 - 00:45	2.05	00:00 - 00:15	12.00	10:00 - 10:15	0.75	10:00 - 10:15	3.50
04-09-2022	23:30 - 23:45	2.01	19:45 - 20:00	12.00	17:30 - 17:45	0.75	09:45 - 10:00	1.50
05-09-2022	23:45 - 24:00	2.24	19:00 - 19:15	12.00	08:30 - 08:45	0.91	13:15 - 13:30	2.91
06-09-2022	00:00 - 00:15	2.05	19:00 - 19:15	12.00	09:30 - 09:45	0.96	13:15 - 13:30	3.76
07-09-2022	00:00 - 00:15	2.02	18:30 - 18:45	12.00	09:15 - 09:30	1.14	13:30 - 13:45	5.30
08-09-2022	23:45 - 24:00	2.47	18:30 - 18:45	12.00	07:45 - 08:00	1.34	13:00 - 13:15	4.00
09-09-2022	23:45 - 24:00	2.85	18:30 - 18:45	12.00	08:45 - 09:00	1.34	13:00 - 13:15	3.65
10-09-2022	23:45 - 24:00	2.65	18:30 - 18:45	12.00	09:30 - 09:45	1.49	13:00 - 13:15	3.46
11-09-2022	00:00 - 00:15	2.43	21:30 - 21:45	8.68	18:00 - 18:15	1.17	11:15 - 11:30	1.50
12-09-2022	23:30 - 23:45	2.10	22:30 - 22:45	11.20	18:15 - 18:30	1.01	13:15 - 13:30	2.00
13-09-2022	23:15 - 23:30	1.89	20:45 - 21:00	12.00	18:30 - 18:45	1.03	13:00 - 13:15	2.68
14-09-2022	06:45 - 07:00	1.83	18:45 - 19:00	12.00	20:15 - 20:30	1.20	13:00 - 13:15	1.99
15-09-2022	07:15 - 07:30	1.95	18:45 - 19:00	12.00	23:45 - 24:00	0.96	12:30 - 12:45	1.20
16-09-2022	07:15 - 07:30	2.07	18:45 - 19:00	12.00	20:30 - 20:45	1.03	13:00 - 13:15	1.50
17-09-2022	07:00 - 07:15	2.02	18:45 - 19:00	12.00	18:15 - 18:30	0.94	13:30 - 13:45	1.99
18-09-2022	07:00 - 07:15	2.08	19:00 - 19:15	8.50	05:15 - 05:30	1.08	12:45 - 13:00	2.00
19-09-2022	07:15 - 07:30	1.97	18:30 - 18:45	12.00	04:00 - 04:15	0.90	12:30 - 12:45	2.87
20-09-2022	07:15 - 07:30	1.76	18:30 - 18:45	12.00	04:45 - 05:00	0.80	11:00 - 11:15	3.74
21-09-2022	07:30 - 07:45	2.06	18:30 - 18:45	12.00	01:45 - 02:00	0.97	10:00 - 10:15	3.11
22-09-2022	07:30 - 07:45	1.87	18:30 - 18:45	12.00	20:30 - 20:45	0.99	14:00 - 14:15	3.16
23-09-2022	07:15 - 07:30	1.86	18:45 - 19:00	12.00	04:45 - 05:00	0.82	03:45 - 04:00	2.67
24-09-2022	07:15 - 07:30	2.06	18:30 - 18:45	12.00	00:00 - 00:15	0.82	13:00 - 13:15	2.22
25-09-2022	07:00 - 07:15	2.09	19:00 - 19:15	8.83	00:15 - 00:30	0.83	13:30 - 13:45	1.70
26-09-2022	07:00 - 07:15	2.42	18:15 - 18:30	12.00	04:45 - 05:00	0.76	13:30 - 13:45	2.91
27-09-2022	07:30 - 07:45	1.98	17:30 - 17:45	12.00	04:00 - 04:15	0.73	13:30 - 13:45	3.74
28-09-2022	07:30 - 07:45	1.91	18:30 - 18:45	12.00	04:45 - 05:00	0.73	13:30 - 13:45	2.94
29-09-2022	07:00 - 07:15	2.03	18:15 - 18:30	12.00	04:15 - 04:30	0.78	13:15 - 13:30	3.08
30-09-2022	07:15 - 07:30	2.07	18:15 - 18:30	12.00	03:45 - 04:00	0.80	13:00 - 13:15	3.45

MCP: Market Clearing Price (Rs/kWh)

FSV: Final Scheduled Volume (MU)

Annexure-VII**Sellers and Buyers in Day Ahead Market (DAM) in the month of September, 2022**

S. No.	Entity Name	Sell		Entity Name	Purchase	
		(MU)	Percent (%)		(MU)	Percent (%)
1.	Telangana	430.51	10.60%	Gujarat	684.12	16.84%
2.	Uttar Pradesh	371.40	9.14%	Rajasthan	540.16	13.30%
3.	Karnataka	308.08	7.58%	Uttar Pradesh	466.03	11.47%
4.	NVVN (SNA) - NEA	254.28	6.26%	Punjab	360.38	8.87%
5.	Kerala	230.02	5.66%	Haryana	323.71	7.97%
6.	Bihar	216.64	5.33%	West Bengal	197.39	4.86%
7.	Teesta -3	193.42	4.76%	Telangana	189.25	4.66%
8.	Jindal Power Ltd. Stg-II	160.27	3.95%	Andhra Pradesh	188.23	4.63%
9.	West Bengal	138.76	3.42%	Daman & Diu - Dadra	154.89	3.81%
10.	Madhya Pradesh	133.86	3.29%	Maharashtra	153.55	3.78%
11.	Himachal Pradesh	122.68	3.02%	Orissa	120.41	2.96%
12.	Sembcorp Gayatri	119.04	2.93%	Tamil Nadu	117.35	2.89%
13.	Orissa	95.26	2.34%	Assam	103.51	2.55%
14.	JITPL	91.71	2.26%	ArcelorMittal Nippon	87.66	2.16%
15.	Raipur Energen	83.67	2.06%	DVC	75.69	1.86%
16.	Maharashtra	63.20	1.56%	Madhya Pradesh	66.50	1.64%
17.	J&K	60.92	1.50%	Delhi	49.77	1.23%
18.	Jindal Power	58.04	1.43%	Jharkhand	43.36	1.07%
19.	Delhi	55.97	1.38%	Karnataka	43.13	1.06%
20.	Tamil Nadu	55.54	1.37%	Chhattisgarh	34.93	0.86%
21.	Uttarakhand	54.79	1.35%	Railways	30.17	0.74%
22.	Sembcorp Energy India Ltd.	46.74	1.15%	Kerala	7.88	0.19%
23.	Chhattisgarh	46.30	1.14%	Uttarakhand	5.79	0.14%
24.	Haryana	45.74	1.13%	Tripura	5.39	0.13%
25.	Essar Power MP Ltd	44.90	1.11%	BALCO 2	3.17	0.08%
26.	DB Power	38.85	0.96%	Goa WR	2.99	0.07%
27.	Mizoram	35.59	0.88%	Meghalaya	2.30	0.06%
28.	Chandigarh	35.34	0.87%	Bihar	2.01	0.05%
29.	Goa WR	34.73	0.85%	Chandigarh	1.80	0.04%
30.	Jharkhand	34.48	0.85%	Goa SR	0.37	0.01%
31.	Arunachal Pradesh	34.35	0.85%	Manipur	0.37	0.01%
32.	Jaypee Nigrie	29.37	0.72%	Himachal Pradesh	0.29	0.01%
33.	Sainj HEP	27.98	0.69%			
34.	Andhra Pradesh	22.36	0.55%			
35.	Costal Energen	21.83	0.54%			
36.	Assam	19.87	0.49%			
37.	Kameng HEP	17.28	0.43%			
38.	AD Hydro	16.56	0.41%			
39.	Gujarat	15.42	0.38%			
40.	Palatana	13.86	0.34%			
41.	Karcham Wangtoo	12.73	0.31%			
42.	MB Power	12.12	0.30%			
43.	Renew Surya Ravi Private	11.90	0.29%			
44.	ACBIL	11.74	0.29%			
45.	SKS Power	11.59	0.29%			

46.	Adani Green Energy Nineteen	11.25	0.28%			
47.	Chuzachen	9.93	0.24%			
48.	Nathpa Jhakri	9.26	0.23%			
49.	Adani Power STG3	8.53	0.21%			
50.	Shree Cement	8.50	0.21%			
51.	Sikkim	8.17	0.20%			
52.	Nagaland	6.85	0.17%			
53.	Dikchu	6.27	0.15%			
54.	IGSTPS JHAJJAR	6.21	0.15%			
55.	GMR Warora	5.31	0.13%			
56.	NLC TPS-II Stg-2	5.31	0.13%			
57.	Singoli Bhagwati	4.84	0.12%			
58.	Adhunik Power	4.05	0.10%			
59.	Lanco Budhil	3.82	0.09%			
60.	Rajasthan	3.24	0.08%			
61.	Rampur HEP	2.43	0.06%			
62.	IL&FS	2.35	0.06%			
63.	GMR Kamalanga	2.05	0.05%			
64.	Punjab	1.80	0.04%			
65.	Raigarh Energy Ltd.	1.55	0.04%			
66.	NLC TPS-II	1.38	0.03%			
67.	Talcher Stg-2	1.08	0.03%			
68.	Meghalaya	1.04	0.03%			
69.	Bongaigaon	1.02	0.03%			
70.	Ramagundam Stg-3	0.83	0.02%			
71.	Coastal Gujrat Power Limited	0.66	0.02%			
72.	Simhadri Stg-2	0.59	0.01%			
73.	Salal Power Station	0.53	0.01%			
74.	Ostro Energy Private Limited	0.52	0.01%			
75.	NLC	0.50	0.01%			
76.	Adani Hybrid Energy	0.50	0.01%			
77.	Dhariwal	0.46	0.01%			
78.	Adani Wind Energy Kutchh	0.30	0.01%			
79.	URI I Power Station	0.25	0.01%			
80.	Dulhasti Power Station	0.24	0.01%			
81.	SBSR Power Cleantech Eleven	0.21	0.01%			
82.	NLC TPS-II Expn	0.19	0.00%			
83.	Ramagundam Stg-1	0.18	0.00%			
84.	Adani Hybrid Energy	0.17	0.00%			
85.	URI II Power Station	0.10	0.00%			
86.	Dhauliganga Power Station	0.07	0.00%			
87.	DVC	0.06	0.00%			
88.	Kishanganga Power Station	0.05	0.00%			
89.	Chamera II Power Station	0.05	0.00%			
90.	Chamera III Power Station	0.04	0.00%			
91.	Parbati III Power Station	0.02	0.00%			
92.	Chamera I Power Station	0.02	0.00%			
93.	Tanakpur Powr Station	0.02	0.00%			
94.	Sewa II Power Station	0.01	0.00%			
Total Volume of top 10		2,437.24	59.99%	Total Volume of top 10	3,257.71	80.19%
Total Volume in PXs		4,062.53		Total Volume in PXs	4,062.53	

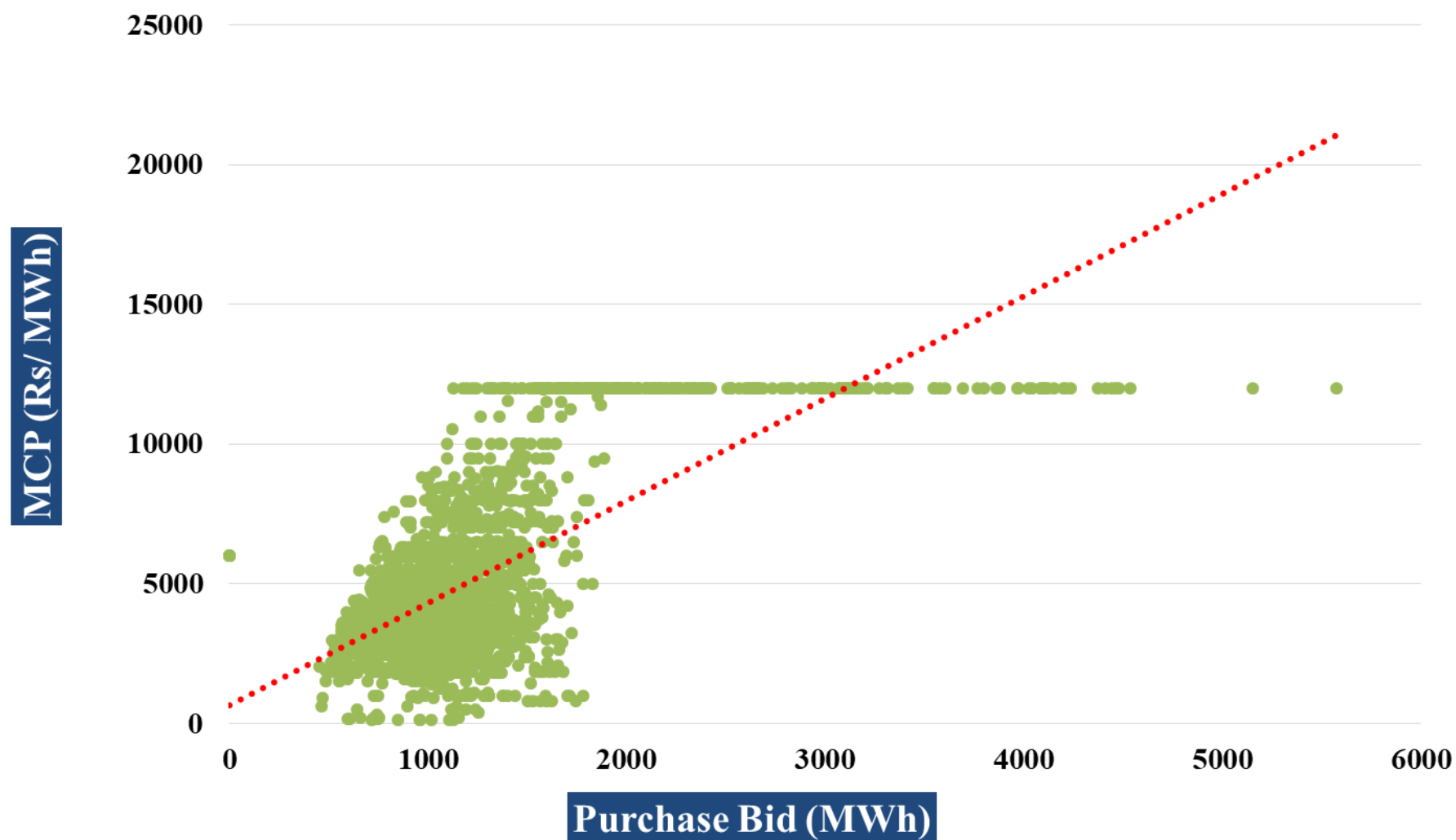
Annexure-VIII**Evening, Day, Night, Morning, Maximum, Minimum, Average MCP (Rs/kWh) and Final Scheduled Volume (MU) in RTM**

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)
01-09-2022	6.40	6.52	11.52	7.61	12.00	3.45	8.07	74.67
02-09-2022	6.56	5.04	10.62	7.63	12.00	3.50	7.45	65.39
03-09-2022	5.27	4.06	9.28	7.11	12.00	2.38	6.46	68.33
04-09-2022	3.82	2.63	4.66	4.88	6.50	1.52	3.99	62.65
05-09-2022	5.11	4.69	10.25	6.20	12.00	2.45	6.59	73.16
06-09-2022	5.85	5.57	10.50	7.81	12.00	2.79	7.40	68.75
07-09-2022	5.63	5.47	10.06	7.26	12.00	3.82	7.17	86.09
08-09-2022	4.66	4.37	10.18	5.71	12.00	2.97	6.26	75.42
09-09-2022	5.69	4.33	9.59	6.13	12.00	2.87	6.40	71.16
10-09-2022	4.23	3.32	6.78	6.48	12.00	1.50	5.26	63.36
11-09-2022	2.62	0.92	4.24	4.63	7.22	0.12	3.11	69.10
12-09-2022	2.81	1.70	4.68	2.97	6.00	0.17	3.10	73.92
13-09-2022	3.69	2.71	4.83	3.70	7.50	1.59	3.69	67.67
14-09-2022	3.71	2.92	4.46	3.72	6.50	1.78	3.67	69.66
15-09-2022	4.04	3.20	4.60	3.06	8.50	2.00	3.65	69.87
16-09-2022	3.05	2.35	4.21	2.78	6.00	1.80	3.06	72.23
17-09-2022	3.72	2.62	5.32	2.79	11.00	1.82	3.53	74.94
18-09-2022	3.95	3.19	8.01	4.30	12.00	2.00	4.84	70.27
19-09-2022	5.45	3.77	7.65	4.73	12.00	2.98	5.30	72.51
20-09-2022	4.06	3.25	5.87	3.58	12.00	2.00	4.14	74.32
21-09-2022	3.80	2.92	4.78	3.57	10.00	2.25	3.72	80.23
22-09-2022	3.16	2.41	5.45	2.64	12.00	1.59	3.36	91.37
23-09-2022	3.00	1.84	3.85	2.36	5.83	0.90	2.69	97.16
24-09-2022	3.35	1.71	5.55	2.73	12.00	1.00	3.24	100.15
25-09-2022	2.74	1.29	5.14	2.43	8.83	0.80	2.83	103.71
26-09-2022	5.05	4.28	10.17	3.26	12.00	2.08	5.58	76.17
27-09-2022	4.43	3.46	9.41	3.77	12.00	2.02	5.20	64.14
28-09-2022	4.88	3.84	7.12	5.12	12.00	2.87	5.21	54.99
29-09-2022	4.11	3.92	7.70	4.37	12.00	1.89	5.03	51.83
30-09-2022	4.26	3.86	6.41	4.24	12.00	2.90	4.67	49.45
Maximum	6.56	6.52	11.52	7.81	12.00	3.82	8.07	103.71
Minimum	2.62	0.92	3.85	2.36	5.83	0.12	2.69	49.45
Average	4.30	3.41	7.10	4.59	10.40	2.06	4.82	73.09

MCP: Market Clearing Price (Rs/kWh)

FSV: Final Scheduled Volume (MU)

Comparison of MCP w.r.t. Purchase Bid for 2,880 Time Blocks during the month of September, 2022 in RTM



Time Blocks during the Month [96 time blocks in a day x 30 days = 2,880]

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

Date	Max. FSV (MU)		Max. MCP (Rs/kWh)		Min FSV (MU)		Min. MCP (Rs/kWh)	
	Time Block	Value	Time Block	Value	Time Block	Value	Time Block	Value
01-09-2022	00:30 - 00:45	1.29	00:00 - 00:15	12.00	18:45 - 19:00	0.43	03:15 - 03:30	3.45
02-09-2022	17:15 - 17:30	1.13	00:00 - 00:15	12.00	19:15 - 19:30	0.28	13:15 - 13:30	3.50
03-09-2022	22:30 - 22:45	1.03	00:00 - 00:15	12.00	03:15 - 03:30	0.36	13:00 - 13:15	2.38
04-09-2022	16:00 - 16:15	1.00	22:15 - 22:30	6.50	04:45 - 05:00	0.37	09:45 - 10:00	1.52
05-09-2022	11:30 - 11:45	1.14	19:00 - 19:15	12.00	20:00 - 20:15	0.45	13:15 - 13:30	2.45
06-09-2022	14:30 - 14:45	1.10	00:00 - 00:15	12.00	08:15 - 08:30	0.41	13:15 - 13:30	2.79
07-09-2022	23:15 - 23:30	1.37	18:45 - 19:00	12.00	18:45 - 19:00	0.55	10:00 - 10:15	3.82
08-09-2022	21:30 - 21:45	1.12	18:45 - 19:00	12.00	07:45 - 08:00	0.37	13:00 - 13:15	2.97
09-09-2022	13:15 - 13:30	1.15	19:00 - 19:15	12.00	21:00 - 21:15	0.49	13:00 - 13:15	2.87
10-09-2022	20:30 - 20:45	1.01	00:00 - 00:15	12.00	06:30 - 06:45	0.37	17:00 - 17:15	1.50
11-09-2022	14:00 - 14:15	1.13	00:00 - 00:15	7.22	05:30 - 05:45	0.42	13:00 - 13:15	0.12
12-09-2022	02:45 - 03:00	1.07	12:00 - 12:15	6.00	17:45 - 18:00	0.53	13:30 - 13:45	0.17
13-09-2022	20:45 - 21:00	0.90	19:15 - 19:30	7.50	07:30 - 07:45	0.45	13:00 - 13:15	1.59
14-09-2022	12:15 - 12:30	1.06	22:30 - 22:45	6.50	00:30 - 00:45	0.40	13:00 - 13:15	1.78
15-09-2022	15:15 - 15:30	1.19	19:00 - 19:15	8.50	02:30 - 02:45	0.38	23:45 - 24:00	2.00
16-09-2022	15:30 - 15:45	1.20	19:00 - 19:15	6.00	00:00 - 00:15	0.32	13:15 - 13:30	1.80
17-09-2022	13:45 - 14:00	1.14	19:00 - 19:15	11.00	02:15 - 02:30	0.43	10:45 - 11:00	1.82
18-09-2022	14:30 - 14:45	1.26	18:45 - 19:00	12.00	18:45 - 19:00	0.37	10:30 - 10:45	2.00
19-09-2022	12:45 - 13:00	1.14	18:30 - 18:45	12.00	04:15 - 04:30	0.44	13:00 - 13:15	2.98
20-09-2022	14:45 - 15:00	1.16	18:45 - 19:00	12.00	08:00 - 08:15	0.40	13:15 - 13:30	2.00
21-09-2022	15:15 - 15:30	1.27	19:00 - 19:15	10.00	03:30 - 03:45	0.30	14:30 - 14:45	2.25
22-09-2022	14:15 - 14:30	1.28	18:30 - 18:45	12.00	00:15 - 00:30	0.49	13:15 - 13:30	1.59
23-09-2022	15:45 - 16:00	1.39	18:30 - 18:45	5.83	04:15 - 04:30	0.73	13:00 - 13:15	0.90
24-09-2022	15:30 - 15:45	1.59	18:45 - 19:00	12.00	19:15 - 19:30	0.68	13:30 - 13:45	1.00
25-09-2022	12:30 - 12:45	1.78	19:00 - 19:15	8.83	22:15 - 22:30	0.54	13:00 - 13:15	0.80
26-09-2022	14:00 - 14:15	1.31	18:00 - 18:15	12.00	18:45 - 19:00	0.20	02:45 - 03:00	2.08
27-09-2022	20:45 - 21:00	1.02	18:00 - 18:15	12.00	04:45 - 05:00	0.41	13:00 - 13:15	2.02
28-09-2022	10:15 - 10:30	0.82	18:15 - 18:30	12.00	01:15 - 01:30	0.27	13:00 - 13:15	2.87
29-09-2022	21:00 - 21:15	1.05	18:30 - 18:45	12.00	00:00 - 00:15	0.22	13:00 - 13:15	1.89
30-09-2022	17:00 - 17:15	0.84	18:45 - 19:00	12.00	04:30 - 04:45	0.30	03:45 - 04:00	2.90

MCP: Market Clearing Price (Rs/kWh)

FSV: Final Scheduled Volume (MU)

Annexure-XI**Sellers and Buyers in Real Time Market (RTM) in the month of September, 2022**

S. No.	Entity Name	Sell		Entity Name	Purchase	
		(MU)	Percent (%)		(MU)	Percent (%)
1.	Madhya Pradesh	471.91	21.52%	Rajasthan	358.49	16.35%
2.	Bihar	195.73	8.92%	Telangana	290.30	13.24%
3.	Orissa	149.75	6.83%	Uttar Pradesh	207.13	9.44%
4.	Kerala	128.36	5.85%	Punjab	188.43	8.59%
5.	Himachal Pradesh	118.83	5.42%	Maharashtra	170.24	7.76%
6.	Telangana	113.24	5.16%	Orissa	120.39	5.49%
7.	Karnataka	81.56	3.72%	DVC	116.18	5.30%
8.	Uttar Pradesh	77.01	3.51%	West Bengal	112.02	5.11%
9.	Andhra Pradesh	75.15	3.43%	Haryana	89.47	4.08%
10.	Delhi	73.97	3.37%	Gujarat	88.47	4.03%
11.	Tamil Nadu	71.97	3.28%	Tamil Nadu	82.10	3.74%
12.	Haryana	69.51	3.17%	Delhi	58.88	2.68%
13.	West Bengal	64.70	2.95%	Andhra Pradesh	58.15	2.65%
14.	Punjab	55.06	2.51%	Madhya Pradesh	40.64	1.85%
15.	Sasan UMPP	51.39	2.34%	Assam	31.63	1.44%
16.	Maharashtra	37.50	1.71%	Daman & Diu - Dadra	23.76	1.08%
17.	J&K	34.03	1.55%	J&K	22.40	1.02%
18.	Kameng HEP	33.80	1.54%	ArcelorMittal Nippon	20.79	0.95%
19.	Assam	32.22	1.47%	Karnataka	19.63	0.90%
20.	Chhattisgarh	26.95	1.23%	Chhattisgarh	15.96	0.73%
21.	Jharkhand	20.57	0.94%	BALCO 2	13.49	0.62%
22.	MB Power	18.19	0.83%	Himachal Pradesh	12.70	0.58%
23.	Jindal Power Ltd. Stg-	16.46	0.75%	Goa WR	9.60	0.44%
24.	Uttarakhand	13.84	0.63%	Kerala	7.49	0.34%
25.	Rajasthan	13.43	0.61%	Uttarakhand	6.98	0.32%
26.	Tripura	9.81	0.45%	Tripura	6.71	0.31%
27.	SKS Power	8.70	0.40%	Bihar	4.48	0.20%
28.	Sainj HEP	8.68	0.40%	Meghalaya	4.19	0.19%
29.	Neyveli New Thermal	7.70	0.35%	Jharkhand	4.15	0.19%
30.	Sembcorp Gayatri	7.42	0.34%	Railways	3.89	0.18%
31.	DB Power	7.36	0.34%	Manipur	1.46	0.07%
32.	Raipur Energen	6.64	0.30%	Mouda Stg-2	1.22	0.06%
33.	AD Hydro	6.27	0.29%	Jindal Power Ltd. Stg-II	0.45	0.02%
34.	Mouda Stg-2	6.18	0.28%	Sikkim	0.37	0.02%
35.	Arunachal Pradesh	5.60	0.26%	Chandigarh	0.37	0.02%
36.	Essar Power MP Ltd	5.30	0.24%	SKS Power	0.28	0.01%
37.	Gujarat	5.07	0.23%	Goa SR	0.26	0.01%
38.	Daman & Diu - Dadra	5.01	0.23%	NTPC Gadarwara	0.06	0.00%
39.	Sorang HEP,	4.83	0.22%	Singoli Bhagwati	0.03	0.00%
40.	Sikkim	4.18	0.19%			
41.	NLC	4.16	0.19%			

42.	Coastal Gujrat Power	3.69	0.17%			
43.	NTPL	3.56	0.16%			
44.	Palatana	3.48	0.16%			
45.	Manipur	3.07	0.14%			
46.	Sembcorp Energy India	2.97	0.14%			
47.	NLC TPS-II Stg-2	2.82	0.13%			
48.	ACBIL	2.78	0.13%			
49.	Karcham Wangtoo	2.78	0.13%			
50.	Nagaland	2.50	0.11%			
51.	NLC TPS-II Expn	2.34	0.11%			
52.	Meghalaya	2.17	0.10%			
53.	GMR Warora	1.08	0.05%			
54.	NLC TPS-II	0.99	0.05%			
55.	Jindal Power	0.91	0.04%			
56.	Adani Power STG3	0.87	0.04%			
57.	Singoli Bhagwati	0.82	0.04%			
58.	TRN Energy	0.81	0.04%			
59.	Chandigarh	0.75	0.03%			
60.	Shree Cement	0.70	0.03%			
61.	Adhunik Power	0.66	0.03%			
62.	Dikchu	0.57	0.03%			
63.	Teesta -3	0.51	0.02%			
64.	NTPC Sholapur	0.48	0.02%			
65.	Ostro Energy Private	0.41	0.02%			
66.	AGTPP	0.39	0.02%			
67.	Lanco Budhil	0.39	0.02%			
68.	GMR Kamalanga	0.38	0.02%			
69.	Jhabua Power	0.38	0.02%			
70.	Sipat Stg-2	0.34	0.02%			
71.	JITPL	0.29	0.01%			
72.	AGBPP	0.28	0.01%			
73.	NTPC Lara	0.26	0.01%			
74.	Goa WR	0.19	0.01%			
75.	IL&FS	0.17	0.01%			
76.	NSPCL Bhilai	0.15	0.01%			
77.	Renew Surya Ravi	0.14	0.01%			
78.	Ramagundam Floating	0.06	0.00%			
79.	Raigarh Energy Ltd.	0.06	0.00%			
80.	IGSTPS JHAJJAR	0.04	0.00%			
81.	DVC	0.01	0.00%			
Total Volume of top 10		1,485.52	67.73%	Total Volume of top 10	1,741.13	79.39%
Total Volume in PXs		2,193.25		Total Volume in PXs	2,193.25	

Annexure-XII**Cross Border Electricity Transactions in Day Ahead Market (DAM) in IEX with Nepal and Bhutan during the month of September, 2022**

S. No	Delivery Date	Buy Volume By Nepal (MU)	Sell Volume by Nepal (MU)
1	01-09-2022	0	8.51
2	02-09-2022	0	8.62
3	03-09-2022	0	8.68
4	04-09-2022	0	8.61
5	05-09-2022	0	8.60
6	06-09-2022	0	8.54
7	07-09-2022	0	8.50
8	08-09-2022	0	8.22
9	09-09-2022	0	8.38
10	10-09-2022	0	8.52
11	11-09-2022	0	8.34
12	12-09-2022	0	8.37
13	13-09-2022	0	8.42
14	14-09-2022	0	8.36
15	15-09-2022	0	8.50
16	16-09-2022	0	8.51
17	17-09-2022	0	7.36
18	18-09-2022	0	8.57
19	19-09-2022	0	8.56
20	20-09-2022	0	8.54
21	21-09-2022	0	8.55
22	22-09-2022	0	8.53
23	23-09-2022	0	8.49
24	24-09-2022	0	8.62
25	25-09-2022	0	8.58
26	26-09-2022	0	8.58
27	27-09-2022	0	8.56
28	28-09-2022	0	8.56
29	29-09-2022	0	8.51
30	30-09-2022	0	8.56
Total		0	254.28
Grand Total		254.28	

-: No transaction happened.

Note: Cross Border Transactions of Electricity of 254.28 MU with Nepal happened during September, 2022 in IEX, which is included in DAM Volume of September, 2022 in IEX.

Appendix-I**Analysis for change in trend of Final Scheduled Volume in DAM on 1st Sunday, 2nd Monday, 3rd Sunday of September, 2022 (i.e. 4th, 12th & 18th September, 2022)**

Final Scheduled Volume (MU) and the Daily Avg. MCP (Rs/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 September, 2022, it is observed that on first Sunday (04th September, 2022), FSV showed increasing trend in comparison to first Saturday (03th September, 2022), on second Monday (12th September, 2022), FSV showed decreasing trend in comparison to second Sunday (11th September, 2022), on third Sunday (18th September, 2022), FSV showed increasing trend in comparison to third Saturday (17th September, 2022).

- (i) On first Sunday (04th September, 2022), although there was decrease in purchase on power exchange by some of the States in comparison to first Saturday (03th September, 2022) by **38.97 MU** [i.e. Rajasthan(7.85 MU), Gujarat(7.64 MU), West Bengal(6.81 MU), ArcelorMittal Nippon steel (ESIL) (4.52 MU) and Haryana(4.29 MU), etc.], there was also increase in purchase on power exchange by some of the States by **45.44 MU** [i.e. Punjab(14.05 MU), Telangana(7.70 MU), Uttar Pradesh(4.93 MU), Orissa(4.64 MU) and Tamil Nadu(3.99 MU),etc.]. This resulted in an overall increase in FSV by **6.47 MU** on Sunday (04th September, 2022) as compared to Saturday (03th September, 2022).
- (ii) On second Monday (12th September, 2022), although there was increase in purchase on power exchange by some of the States in comparison to Second Sunday (11th September, 2022) by **20.99 MU** [i.e. ArcelorMittal Nippon steel (ESIL) (5.34 MU), Orissa(3.99 MU), Punjab(2.94 MU), Maharashtra(2.38 MU) and West Bengal(1.33 MU), etc.], there was also decrease in purchase on power exchange by some of the States by **47.39 MU** [i.e. Gujarat(22.74 MU), Rajasthan(12.21 MU), Uttar Pradesh(5.56 MU), Haryana(3.68 MU), Jharkhand(1.20 MU), etc.]. This resulted in an overall decrease in FSV by **26.40 MU** on Monday (12th September, 2022) as compared to Second Sunday (11th September, 2022).
- (iii) On third Sunday (18th September, 2022), although there was decrease in purchase on power exchange by some of the States in comparison to third Saturday (17th September, 2022) by **72.42 MU** [i.e. Gujarat(30.38 MU), Rajasthan(20.06 MU), Haryana(7.97 MU), West Bengal(5.49 MU) and Chhattisgarh(3.11 MU), etc.], there was also increase in purchase on power exchange by some of the States by **52.48 MU** [i.e. Punjab(16.99 MU), Orissa(8.62 MU), Telangana(7.39 MU), Maharashtra(5.68 MU) and Andhra Pradesh(3.70 MU), etc.]. This resulted in an overall increase in FSV by **19.54 MU** on Sunday (18th September, 2022) as compared to Saturday (17th September, 2022).

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.
13 Bid area are as under:
N1:Jammu and Kashmir, Himachal Pradesh, Chandigarh, Haryana; **N2:** Uttar Pradesh, Uttarakhand, 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)** on the power exchanges are market for electricity where market participants purchase and sell electricity at financially binding day-ahead prices for the following day.
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 through Intra-Day Contracts, Day ahead contingency Contracts, Daily Contracts and Weekly Contracts for both solar and non-Solar Renewable Energy (RE) generation. GTAM is a market-based mechanism, where RE surplus and RE deficit States can trade RE Power and balance their RPO targets.
10. **Green Day Ahead Market (GDAM)** is based on the principles of current Term Ahead Market (TAM), where market participants purchase and sell electricity generated from renewable sources at financially binding day-ahead prices for the following day.
11. **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.

- 12. Real Time Market (RTM)** on the power exchanges is the market for electricity where market participants buy/ sell electricity on a half-hourly market and would commence with the end of the right to revision of schedule or declared capability and would end with gate closure. The auction sessions would be conducted every half an hour for the delivery of power for the duration of 30 minutes in two time blocks of 15 minutes each to commence from one hour after the closure of the RTM trading session.
- 13. Term Ahead Market (TAM)** on the power exchanges is the market for electricity where market participants buy/sell electricity on a term basis ranging from 3 hours before actual despatch (i.e. intra-day) and up to 11 days in advance. There are 4 types of contracts in TAM, namely; Intra-day, Day Ahead Contingency, Daily and Weekly.