



सत्यमेव जयते

अगस्त, 2021 मासिक मार्केट मॉनिटरिंग रिपोर्ट

Monthly Market Monitoring Report

August, 2021



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केन्द्रीय विद्युत प्राधिकरण/ Central Electricity Authority
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REPORT FOR MONTH: AUGUST, 2021

OVERVIEW OF ELECTRICITY TRANSACTIONS ON POWER EXCHANGES IN INDIA

1. DAY AHEAD MARKET (DAM)

- 1.1. The total volume of electricity transacted on both the power exchanges, viz., IEX and PXIL in the Day Ahead Market (DAM) in the month of August, 2021 was **6,653.88 MU**. The total energy supplied in the country during the month of August, 2021 was 1,27,881 MU. Thus, the volume of electricity transacted on both the power exchanges in DAM during August, 2021 was 5.20 % of the total energy supplied in the country. The total volume of electricity transacted in DAM on both the power exchanges during July, 2021 was **4,241.01 MU** which was 3.43% of the total energy supplied [1,23,720 MU] in the country during July, 2021. Similarly, the total volume of electricity transacted in DAM on both the power exchanges during August, 2020 was **4,498.46 MU** which was 4.12 % of the total energy supplied [1,09,217 MU] in the country during August, 2020.
- 1.2. The volume of electricity transacted on IEX and PXIL during August, 2021 were **6,648.76 MU and 5.12 MU**, respectively, which means that the total volume transacted on IEX was **99.92%** of the total volume on power exchanges. The volume of electricity transacted on IEX and PXIL during July, 2021 were **4,238.25 MU and 2.76 MU**, respectively, which means that the total volume transacted on IEX was **99.93 %** of the total volume on power exchanges. Also, the volume of electricity transacted on IEX and PXIL during August, 2020, were **4,484.36 MU and 14.10 MU** respectively.
- 1.3. The DAM Volume in IEX for August, 2021 is inclusive of Cross Border Transactions of Electricity of **3.49 MU (purchase only)** happened with Nepal during August, 2021, whereas , the same was **72.23 MU** during July, 2021. The day-wise details of Cross Border Electricity Trade happened during August, 2021 are given in **Annexure-XII**.
- 1.4. The Average Market Clearing Price (MCP) on IEX during the month of August, 2021 was **Rs 5.06/kWh**, which shows an increase of **71.53%** and an increase of **108.23%** when compared with average MCP's for the month of July, 2021 and August, 2020, which were **Rs 2.95/kWh and Rs 2.43/kWh**, respectively. On PXIL, the average MCP during the month of August, 2021 was **Rs 4.72/kWh**, which shows an increase of **56.29%** and an increase of **78.79%** when compared with average MCP's for the month of July, 2021 and August, 2020, which were **Rs 3.02/kWh and Rs 2.64/kWh** respectively.

2. SUMMARY OF THE MARKET CLEARING PRICE, AREA CLEARING PRICE AND FINAL SCHEDULED VOLUME IN THE POWER EXCHANGES

- 2.1. A comparison of the Minimum, Maximum and Average of Daily MCP during the month of August, 2021 with that of July, 2021 and August, 2020 is given in Table- 1A & 1B:

(a) August, 2021 vis- a -vis July, 2021

Daily MCP (Rs/kWh)	IEX			PXIL		
	August, 2021	July, 2021	% Change	August, 2021	July, 2021	% Change
Minimum	1.90	1.79	6.15	2.88	2.32	24.14
Maximum	9.81	5.08	93.11	8.16	3.72	119.35
Average	5.06	2.95	71.53	4.72	3.02	56.29

Table: 1A**(b) August, 2021 vis- a –vis August, 2020**

Daily MCP (Rs/kWh)	IEX			PXIL		
	August, 2021	August, 2020	% Change	August, 2021	August, 2020	% Change
Minimum	1.90	1.64	15.85	2.88	2.47	16.60
Maximum	9.81	2.99	228.09	8.16	2.81	190.39
Average	5.06	2.43	108.23	4.72	2.64	78.79

Table: 1B

- 2.2. The maximum Area Clearing Price (ACP) of **Rs 20.00/kWh** in IEX was observed in all 13 bid areas during the time block **19:30-19:45 Hrs** on 29th August, 2021. As there was no congestion in transmission system, the MCP for this time-block was also **Rs 20.00/kWh**. However, the Daily MCP in IEX on pan India basis on 29th August, 2021 was **Rs 8.34/kWh**. Whereas, in PXIL, the maximum ACP of **Rs 8.99/kWh** was observed in all 13 bid areas during 12 consecutive time blocks on 19.08.2021 from **19:00-19.15 Hrs to 21.45 -22:00 Hrs** and 24 consecutive time blocks from **18:00-18.15 Hrs to 23.45 -24:00 Hrs** on 31.08.2021. As there was no congestion in transmission system, the MCP for above time blocks were also **Rs 8.99 /kWh**. However, the Daily MCP in PXIL on 19th August, 2021 and 31st August, 2021 were **Rs 8.16/kWh** and **Rs 6.40/kWh** respectively.
- 2.3. The minimum ACP of **Rs 1.10/kWh** in IEX was observed in all 13 bid areas during the time block **04:00-04:15 Hrs** on 01st August, 2021. As there was no congestion in transmission system, the MCP for this time-block was also **Rs 1.10/kWh** on 01st August, 2021. However, the Daily MCP in IEX on pan India basis on 01st August, 2021 was **Rs 1.90/kWh**. Whereas, in PXIL, the minimum ACP of **Rs 2.41/kWh** was observed in all 13 bid areas during 8 consecutive time blocks on 03.08.2021 from **16:00-16:15 Hrs to 17:45-18:00 Hrs** and 12 consecutive time blocks from **02:00-02:15 Hrs to 04:45-05:00 Hrs** and 54 consecutive time blocks from **05:30-05:45 Hrs to 18:45-19:00 Hrs** on 04.08.2021. As no congestion was there in transmission system, the MCP for the above time blocks were also **Rs 2.41/kWh**. Moreover, the Daily MCP in PXIL on 03rd August, 2021 and 04th August, 2021 were **Rs 3.30/kWh** and **Rs 2.88/kWh** respectively.
- 2.4. A comparison of the Minimum and Maximum Area Clearing Price (ACP) during the months of August, 2021 with that of July, 2021 and August, 2020 is given in Table-2A&2B:

(a) August, 2021 vis- a -vis July, 2021

ACP (Rs/kWh)	IEX			PXIL		
	August, 2021	July, 2021	% Change	August, 2021	July, 2021	% Change
Minimum	1.10	1.00	10.00	2.41	2.32	3.88
Maximum	20.00	10.90	83.49	8.99	6.99	28.61

Table: 2A**(b) August, 2021 vis- a- vis August, 2020**

ACP (Rs/kWh)	IEX			PXIL		
	August, 2021	August, 2020	% Change	August, 2021	August, 2020	% Change
Minimum	1.10	0.68	61.76	2.41	2.00	20.50
Maximum	20.00	4.93	305.68	8.99	4.18	115.07

Table: 2B

2.5. A comparison of the Minimum, Maximum and Average of Final Scheduled Volume (FSV) of electricity transactions happened on IEX and PXIL for a day during the months of August, 2021 with that of July, 2021 and August, 2020 is given in Table-3A & 3B:

(a) August, 2021 vis- a- vis July, 2021

Final Scheduled Volume (MU)	IEX			PXIL		
	August, 2021	July, 2021	% Change	August, 2021	July, 2021	% Change
Minimum	114.52	103.00	11.18	0.02	0.05	-60.00
Maximum	296.64	176.31	68.25	1.00	0.73	36.99
Average	214.48	136.72	56.88	0.37	0.25	48.00

Table: 3A**(b) August, 2021 vis- a- vis August, 2020**

Final Scheduled Volume (MU)	IEX			PXIL		
	August, 2021	August, 2020	% Change	August, 2021	August, 2020	% Change
Minimum	114.52	103.09	11.09	0.02	0.87	-97.70
Maximum	296.64	187.85	57.91	1.00	3.83	-73.89
Average	214.48	144.66	48.26	0.37	2.01	-81.59

Table: 3B**3. TERM AHEAD MARKET (TAM)****Term Ahead Market (TAM) (on Trade Date Basis)**

3.1. The total volume of electricity transacted on both the power exchanges in Term Ahead Market on trade date basis in August, 2021 was **767.71 MU**, out of which, **483.31 MU** (62.95 %) was transacted on IEX and **284.40 MU** (37.05 %) was transacted on PXIL.

- 3.2. The total volume of electricity transacted on both the power exchanges in Term Ahead Market on trade date basis in July, 2021 was **1,099.54 MU**, out of which, **832.44 MU** (75.71 %) was transacted on IEX and **267.10 MU** (24.29 %) was transacted on PXIL.
- 3.3. Similarly, total volume of electricity transacted during August, 2020 in Term Ahead Market on trade date basis in both the power exchanges was **417.65 MU**, out of which, **146.93 MU** (35.18 %) was transacted on IEX and **270.72 MU** (64.82%) was transacted on PXIL.
- 3.4. With respect to the total energy supplied during month of August, 2021 in the country, the volume of electricity traded on power exchanges in TAM on trade date basis represents **0.60 %** of the total energy supplied. The same was **0.89%** in July, 2021 and **0.38 %** in August, 2020.
- 3.5. In the month of August, 2021, there was a transmission congestion in IEX of **14.46 MU** in Daily/Anyday Contract and **0.50 MU** in Intraday contract, whereas in PXIL, there was a transmission congestion of **0.084 MU** in Intraday contract, **20.98 MU** in Daily/Anyday Contract and **0.32 MU** in Day Ahead Contingency contract during month of August, 2021.
- 3.6. The comparison of total volume of electricity transacted on both the power exchanges in Term Ahead Market (TAM) during August, 2021 with July, 2021 and August, 2020 is given in Table- 4A&4B:

(a) August, 2021 vis- a- vis July, 2021 (on trade Date Basis)

Contract Type	IEX			PXIL		
	August, 2021	July, 2021	% Change	August, 2021	July, 2021	% Change
Intra Day (MU)	8.47	12.88	-34.24	13.94	109.93	-87.32
Day Ahead Contingency(MU)	108.11	249.01	-56.58	114.48	-	NA
Daily/ AnyDay (MU)	366.73	570.55	-35.72	155.98	157.17	-0.76
Weekly (MU)	-	-	NA	-	-	NA

- : No Transaction happened

NA: Not Applicable

Table: 4A

(b) August, 2021 vis- a- vis August, 2020 (on trade Date Basis)

Contract Type	IEX			PXIL		
	August, 2021	August, 2020	% Change	August, 2021	August, 2020	% Change
Intra Day (MU)	8.47	1.87	352.94	13.94	18.87	-26.13
Day Ahead Contingency(MU)	108.11	2.46	4,294.72	114.48	-	NA
Daily/ AnyDay (MU)	366.73	142.60	157.17	155.98	251.85	-38.07
Weekly (MU)	-	-	NA	-	-	NA

- : No Transaction happened

NA: Not Applicable

Table: 4B

Term Ahead Market (TAM) (on delivery Date Basis)

- 3.7. The total volume of electricity transacted on both the power exchanges in Term Ahead Market on delivery date basis in August, 2021 was **855.86 MU**, out of which, **617.23 MU** (72.12 %) was transacted on IEX and **238.63 MU** (27.88 %) was transacted on PXIL.
- 3.8. The total volume of electricity transacted on both the power exchanges in Term Ahead Market on delivery date basis in July, 2021 was **1,093.98 MU**, out of which, **761.26 MU** (69.59 %) was transacted on IEX and **332.72 MU** (30.41 %) was transacted on PXIL.
- 3.9. Similarly, total volume of electricity transacted during August, 2020 in Term Ahead Market on delivery date basis in both the power exchanges was **441.75 MU**, out of which, **120.53 MU** (27.28 %) was transacted on IEX and **321.22 MU** (72.72%) was transacted on PXIL.
- 3.10. With respect to the total energy supplied during the month of August, 2021 in the country, the volume of electricity traded on the power exchanges in TAM on delivery date basis represents **0.67 %** of the total energy supplied. The same was **0.88 %** in July, 2021 and **0.40 %** in August, 2020.
- 3.11. In the month of August, 2021, there was real time curtailment in IEX of **28.16 MU** in Daily/Anyday Contract and **0.31 MU** in Day Ahead Contingency Contract in Term Ahead Market, whereas in PXIL, there was real time curtailment of **0.084 MU** in Intraday Contract, **20.98 MU** in Daily/Anyday Contract and **0.32 MU** in Day Ahead Contingency Contract in Term Ahead Market during August, 2021.
- 3.12. **The comparison of total volume of electricity transacted in both the power exchanges in Term Ahead Market (TAM) on delivery date basis during August, 2021 with July, 2021 and August, 2020 is given in Table – 4C&4D:**

(a) August, 2021 vis- a- vis July, 2021 (on Delivery Date Basis)

Contract Type	IEX			PXIL		
	August, 2021	July, 2021	% Change	August, 2021	July, 2021	% Change
Intra Day (MU)	8.47	12.88	-34.24	13.94	119.10	-88.30
Day Ahead Contingency(MU)	110.10	263.75	-58.26	101.58	-	NA
Daily/ Any Day (MU)	498.66	484.63	2.89	123.11	213.62	-42.37
Weekly (MU)	-	-	NA	-	-	NA

- : No transaction happened

NA: Not Applicable

Table: 4C**(b) August, 2021 vis- a- vis August, 2020 (on Delivery Date Basis)**

Contract Type	IEX			PXIL		
	August, 2021	August, 2020	% Change	August, 2021	August, 2020	% Change
Intra Day (MU)	8.47	1.87	352.94	13.94	18.77	-25.73
Day Ahead Contingency MU)	110.10	1.62	6,696.30	101.58	-	NA
Daily/ Any Day (MU)	498.6	117.04	326.06	123.11	302.45	-59.30
Weekly (MU)	-	-	-	-	-	NA

-: No transaction happened

NA: Not Applicable

Table: 4D

4. REAL TIME MARKET (RTM)

The transaction of Electricity in Real Time Market was started from 1st June, 2020 with the approval of the CERC in both the power exchanges - IEX and PXIL. The Final Scheduled Volume (FSV), Daily Market Clearing Prices (MCP) and Area Clearing Prices (ACP) in Real Time Market during the month of August, 2021 as compared with July, 2021 and August, 2020 are as given in table 5A, 5B & 5C:

(i) Final Scheduled Volume:

Exchange	Period	Final Scheduled Volume (MU)			
		Total	Minimum	Maximum	Average
IEX	August, 2021	1,859.46	40.08	98.33	59.98
	July, 2021	1,596.00	33.33	81.61	51.48
	Change % (Month over Month)	16.51	20.25	20.49	16.51
	August, 2020	860.57	15.47	53.09	27.76
	Change % (Year over Year)	116.07	159.08	85.21	116.07
PXIL	August, 2021	-	-	-	-
	July, 2021	-	-	-	-
	Change % (Month over Month)	NA	NA	NA	NA
	August, 2020	-	-	-	-
	Change % (Year over Year)	NA	NA	NA	NA

-: No transaction happened

NA: Not Applicable

Table-5A

(ii) Daily Market Clearing Price (MCP):

Exchange	Period	Daily MCP (Rs/kWh)		
		Minimum	Maximum	Average
IEX	August, 2021	2.18	11.98	4.64
	July, 2021	1.62	6.47	2.77
	Change % (Month over Month)	34.57	85.16	67.51
	August, 2020	1.66	2.98	2.27
	Change % (Year over Year)	31.33	302.01	104.41
PXIL	August, 2021	-	-	-
	July, 2021	-	-	-
	Change % (Month over Month)	NA	NA	NA
	August, 2020	-	-	-
	Change % (Year over Year)	NA	NA	NA

-: No transaction happened

NA: Not Applicable

Table-5B

(iii) Area Clearing Price (ACP):

Exchange	Period	ACP (Rs/kWh)	
		Minimum	Maximum
IEX	August, 2021	0.80	20.00
	July, 2021	0.20	16.85
	Change % (Month over Month)	300.00	18.69
	August, 2020	0.10	5.21
	Change % (Year over Year)	700.00	283.88
PXIL	August, 2021	-	-
	July, 2021	-	-
	Change % (Month over Month)	NA	NA
	August, 2020	-	-

	Change % (Year over Year)		
-: No transaction happened		NA: Not Applicable	

Table -5C**5. GREEN TERM AHEAD MARKET (GTAM):**

The transaction of electricity in Green Term Ahead Market was started in IEX w.e.f. 21st August, 2020 onwards whereas, in PXIL, GTAM (Non-Solar) was started w.e.f. 24th March, 2021 and GTAM (Solar) w.e.f. June, 2021 onwards. The total volume of electricity transacted in Solar Energy Segment in GTAM in Day Ahead Contingency, Intraday, Daily/Anyday and Weekly contracts during August, 2021 on trade date basis and delivery date basis has been shown in Tables 6A to 6H.

5.1. Solar Energy Segment in GTAM (On Trade date basis)

The Final Scheduled Volume and the Price of electricity transacted in GTAM in IEX & PXIL during August, 2021 and its comparison with July, 2021 has been shown in Table 6A & 6B below.

(i) Final Scheduled Volume:

Exch-ange	Solar Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum	Maximum	Average
IEX	Day Ahead Contingency	August, 2021	137.07	0.15	11.52	4.42
		July, 2021	174.26	0.77	10.55	5.62
		%Change (Month over Month)	-21.34	-80.52	9.19	-21.35
		August, 2020	2.93	0.01	0.35	0.27
		%Change (Year over Year)	4,578.16	1,400.00	3,191.43	1,537.04
	Intraday	August, 2021	2.86	0.04	1.20	0.12
		July, 2021	0.45	0.05	0.18	0.09
		%Change (Month over Month)	535.56	-20.00	566.67	33.33
		August, 2020	0.002	0.002	0.002	0.002
		%Change (Year over Year)	14,2900.00	1,900.00	5,9900.00	5,900.00
IEX	Daily/Anyday	August, 2021	2.95	0.35	0.78	0.49
		July, 2021	15.46	0.21	2.10	0.64
		%Change (Month over Month)	-80.92	66.67	-62.86	-23.44
		August, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Weekly	August, 2021	3.85	3.85	3.85	3.85
		July, 2021	2.10	2.10	2.10	2.10
		%Change (Month over Month)	83.33	83.33	83.33	83.33
		August, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
PXIL	Day Ahead Contingency	August, 2021	-	-	-	-
		July, 2021	-	-	-	-
	Intraday	August, 2021	-	-	-	-
		July, 2021	-	-	-	-

	Daily/ Anyday	August, 2021	-
		July, 2021	-
	Weekly	August, 2021	-
		July, 2021	-

-: No transaction happened

NA: Not Applicable

Table-6A

(ii) Daily Market Clearing Price (MCP):

Exchange	Solar Energy Contract	Period	Prices(Rs/kWh)		
			Minimum	Maximum	Average
IEX	Day Ahead Contingency	August, 2021	2.91	7.09	4.24
		July, 2021	2.63	3.40	3.05
		%Change (Month over Month)	10.65	108.53	39.02
		August, 2020	3.00	3.24	3.07
		%Change (Year over Year)	-3.00	118.83	38.11
	Intraday	August, 2021	3.00	4.00	3.35
		July, 2021	3.00	3.60	3.21
		%Change (Month over Month)	0.00	11.11	4.36
		August, 2020	3.00	3.00	3.00
		%Change (Year over Year)	0.00	33.33	11.67
	Daily/Anyday	August, 2021	3.35	3.38	3.35
		July, 2021	3.00	3.90	3.35
		%Change (Month over Month)	11.67	-13.33	0.00
		August, 2020	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Weekly	August, 2021	3.40	3.40	3.40
		July, 2021	4.00	4.00	4.00
IEX		%Change (Month over Month)	-15.00	-15.00	-15.00
		August, 2020	-	-	-
		%Change (Year over Year)	NA	NA	NA
PXIL	Day Ahead Contingency	August, 2021	-	-	-
		July, 2021	-	-	-
	Intraday	August, 2021	-	-	-
		July, 2021	-	-	-
	Daily/ Anyday	August, 2021	-	-	-
		July, 2021	-	-	-
	Weekly	August, 2021	-	-	-
		July, 2021	-	-	-

-: No transaction happened

NA: Not Applicable

Table-6B

5.2. Solar Energy Segment in GTAM (On Delivery date basis)

The Final Scheduled Volume and the Price of electricity transacted in GTAM in IEX & PXIL during August, 2021 and its comparison with July, 2021 has been shown in Table 6C & 6D below.

(i) Final Scheduled Volume:

Exch -ange	Solar Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum	Maximum	Average
IEX	Day Ahead Contingency	August, 2021	132.77	0.15	11.52	4.28
		July, 2021	176.54	2.41	10.55	5.69
		%Change (Month over Month)	-24.79	-93.78	9.19	-24.78
		August, 2020	2.66	0.01	0.35	0.27
		%Change (Year over Year)	4891.35	1400.00	3191.43	1485.19
	Intraday	August, 2021	2.86	0.04	1.20	0.12
		July, 2021	0.45	0.05	0.18	0.09
		%Change (Month over Month)	535.56	-20.00	566.67	33.33
		August, 2020	0.002	0.002	0.002	0.002
		%Change (Year over Year)	14,2900.00	1,900.00	59,900.00	5,900.00
	Daily/ Anyday	August, 2021	6.22	0.36	1.08	0.62
		July, 2021	18.88	0.21	1.20	0.61
		%Change (Month over Month)	-67.06	71.43	-10.00	1.64
		August, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Weekly	August, 2021	3.85	0.55	0.55	0.55
		July, 2021	3.25	0.29	0.30	0.30
		%Change (Month over Month)	18.46	89.66	83.33	83.33
		August, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
PXIL	Day Ahead Contingency	August, 2021	-			
		July, 2021	-			
	Intraday	August, 2021	-			
		July, 2021	-			
	Daily/Anyday	August, 2021	-			
		July, 2021	-			
	Weekly	August, 2021	-			
		July, 2021	-			

-: No transaction happened

NA: Not Applicable

Table-6C

(ii) Daily Market Clearing Price (MCP):

Exchange	Solar Energy Contract	Period	Prices(Rs/kW)		
			Minimum	Maximum	Average
IEX	Day Ahead Contingency	August, 2021	2.63	7.09	4.20
		July, 2021	2.66	3.40	3.07
		%Change (Month over Month)	-1.13	108.53	36.81
		August, 2020	3.00	3.17	3.05
		%Change (Year over Year)	-12.33	123.66	37.70
	Intraday	August, 2021	3.00	4.00	3.35

		July, 2021	3.00	3.60	3.21
		%Change (Month over Month)	0.00	11.11	4.36
		August, 2020	3.00	3.00	3.00
		%Change (Year over Year)	0.00	33.33	11.67
		August, 2021	3.18	3.35	3.22
	Daily/Anyday	July, 2021	3.20	3.78	3.47
		%Change (Month over Month)	-0.63	-11.38	-7.20
		August, 2020	-	-	-
		%Change (Year over Year)	NA	NA	NA
		August, 2021	3.40	3.40	3.40
	Weekly	July, 2021	3.80	4.00	3.93
		%Change (Month over Month)	-10.53	-15.00	-13.49
		August, 2020	-	-	-
		%Change (Year over Year)	NA	NA	NA
		August, 2021			
PXIL	Day Ahead Contingency	August, 2021	-		
		July, 2021	-		
	Intraday	August, 2021	-		
		July, 2021	-		
	Daily/Anyday	August, 2021	-		
		July, 2021	-		
	Weekly	August, 2021	-		
		July, 2021	-		

-: No transaction happened

NA: Not Applicable

Table-6D

5.3. Non-Solar Energy Segment in GTAM (On Trade date basis)

The total volume of electricity transacted on both the power exchanges in non-Solar Energy Segment in GTAM in Day Ahead Contingency, Intraday, Daily/ Anyday and Weekly contracts during August, 2021 on trade date basis and delivery date basis has been shown in Tables 6E to 6H.

The Final Scheduled Volume and the Price of electricity transacted in Non-Solar GTAM in IEX & PXIL during August, 2021 on trade date basis and its comparison with July, 2021 has been shown in Table 6E & 6F below.

(i) Final Scheduled Volume:

Exchange	Non- Solar Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum	Maximum	Average
IEX	Day Ahead Contingency	August, 2021	220.82	1.98	16.31	7.12
		July, 2021	272.32	3.02	20.73	8.78
		%Change (Month over Month)	-18.91	-34.44	-21.32	-18.91
		August, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Intraday	August, 2021	6.44	0.05	3.78	1.07
		July, 2021	8.46	0.12	5.10	1.06

		%Change (Month over Month)	-23.88	-58.33	-25.88	0.94
		August, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Daily/ Anyday	August, 2021	35.81	1.73	29.28	11.94
		July, 2021	231.33	0.43	127.94	33.05
		%Change (Month over Month)	-84.52	302.33	-77.11	-63.87
		August, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Weekly	August, 2021	3.02	0.50	1.51	0.76
		July, 2021	21.00	0.34	7.22	5.25
		%Change (Month over Month)	-85.62	47.06	-79.09	-85.52
		August, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
PXIL	Day Ahead Contingen cy	August, 2021	12.68	0.65	1.40	0.79
		July, 2021	-	-	-	-
		% Change	NA	NA	NA	NA
	Intraday	August, 2021	0.42	0.04	0.10	0.08
		July, 2021	-	-	-	-
		% Change	NA	NA	NA	NA
	Daily/ Anyday	August, 2021	19.34	0.17	4.80	1.49
		July, 2021	16.24	0.03	0.98	0.56
		% Change	19.09	466.67	389.80	166.07
	Weekly	August, 2021	-			
		July, 2021	-			

-: No transaction happened

NA: Not Applicable

Table-6E

(ii) Daily Market Clearing Price (MCP):

Exchange	Non- Solar Energy Contract	Period	Prices(Rs/kWh)		
			Minimum	Maximum	Average
IEX	Day Ahead Contingency	August, 2021	3.39	8.57	5.29
		July, 2021	3.13	5.70	3.88
		%Change (Month over Month)	8.31	50.35	36.34
		August, 2020	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Intraday	August, 2021	4.15	7.55	5.32
		July, 2021	3.50	5.13	4.25
		%Change (Month over Month)	18.57	47.17	25.18
		August, 2020	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Daily/ Anyday	August, 2021	4.30	5.50	4.87
		July, 2021	3.70	4.50	4.07
		%Change	16.22	22.22	19.66

		(Month over Month)			
		August, 2020	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Weekly	August, 2021	4.00	5.00	4.40
		July, 2021	3.65	4.20	3.94
		%Change (Month over Month)	9.59	19.05	11.68
		August, 2020	-	-	-
		%Change (Year over Year)	NA	NA	NA
PXIL	Day Ahead Contingency	August, 2021	3.67	5.16	4.74
		July, 2021	-	-	-
		% Change (Month over Month)	NA	NA	NA
	Intraday	August, 2021	3.42	5.25	4.05
		July, 2021	-	-	-
		% Change (Month over Month)	NA	NA	NA
	Daily/ Anyday	August, 2021	3.50	4.45	3.93
		July, 2021	3.38	4.32	3.76
		% Change (Month over Month)	3.55	3.01	4.52
	Weekly	August, 2021	-		
		July, 2021	-		

-: No transaction happened

NA: Not Applicable

Table-6F

5.4. Non-Solar Energy Segment in GTAM (On Delivery date basis)

The Final Scheduled Volume and the Price of electricity transacted in GTAM in IEX & PXIL during August, 2021 and its comparison with July, 2021 has been shown in Table 6G & 6H below.

(i) Final Scheduled Volume:

Exch- ange	Non- Solar Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum	Maximum	Average
IEX	Day Ahead Contingency	August, 2021	226.27	1.98	16.31	7.30
		July, 2021	269.29	3.02	20.73	8.69
		%Change (Month over Month)	-15.98	-34.44	-21.32	-16.00
		August, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Intraday	August, 2021	6.44	0.05	3.78	1.07
		July, 2021	8.46	0.12	5.10	1.06
		%Change (Month over Month)	-23.88	-58.33	-25.88	0.94
		August, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Daily/Anyday	August, 2021	76.80	0.07	5.59	2.95
		July, 2021	188.95	0.05	16.87	7.87

		%Change (Month over Month)	-59.35	40.00	-66.86	-62.52
		August, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Weekly	August, 2021	10.44	0.07	1.03	0.36
		July, 2021	13.58	0.05	1.03	0.68
		%Change (Month over Month)	-23.12	40.00	0.00	-47.06
		August, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
PXIL	Day Ahead Contingency	August, 2021	12.68	0.65	1.40	0.79
		July, 2021	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
	Intraday	August, 2021	0.42	0.04	0.10	0.08
		July, 2021	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
	Daily/Anyday	August, 2021	19.70	0.24	2.78	0.68
		July, 2021	16.77	0.03	0.98	0.58
		%Change (Month over Month)	17.47	700.00	183.67	17.24
	Weekly	August, 2021	-			
		July, 2021	-			

-: No transaction happened

NA: Not Applicable

Table-6G

(ii) Daily Market Clearing Price (MCP):

Excha- nge	Non- Solar Energy Contract	Period	Prices(Rs/kW)		
			Minimum	Maximum	Average
IEX	Day Ahead Contingency	August, 2021	3.29	8.57	5.24
		July, 2021	3.13	5.70	3.92
		%Change (Month over Month)	5.11	50.35	33.67
		August, 2020	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Intraday	August, 2021	4.15	7.55	5.32
		July, 2021	3.50	5.13	4.25
		%Change (Month over Month)	18.57	47.17	25.18
		August, 2020	-	-	-
		%Change (Year over Year)	NA	NA	NA
IEX	Daily/Any day	August, 2021	3.88	5.50	4.37
		July, 2021	3.88	4.50	4.22
		%Change (Month over Month)	0.00	22.22	3.55
		August, 2020	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Weekly	August, 2021	3.65	5.00	4.26

		July, 2021	3.80	4.20	4.05
		%Change (Month over Month)	-3.95	19.05	5.19
		August, 2020	-	-	-
		%Change (Year over Year)	NA	NA	NA
PXIL	Day Ahead Contingency	August, 2021	3.67	5.16	4.74
		July, 2021	-	-	-
		%Change (Month over Month)	NA	NA	NA
	Intraday	August, 2021	3.42	5.25	4.05
		July, 2021	-	-	-
		%Change (Month over Month)	NA	NA	NA
	Daily/Any day	August, 2021	3.50	4.45	4.12
		July, 2021	3.38	4.40	3.79
		%Change (Month over Month)	3.55	1.14	8.71
	Weekly	August, 2021	-		
		July, 2021	-		

-: No transaction happened

NA: Not Applicable

Table-6H

6. BILATRAL TRANSACTIONS:

The total volume of electricity transacted through **Bilateral transactions** in the month of August, 2021 for buy and sell were **7,625.49 MU** and **7,625.24 MU** respectively. The total buy volume of electricity transacted in bilateral market through direct transactions and traders in the month of August, 2021 were **2,086.57 MU** and **5,538.92 MU** respectively. Similarly, the total sell volume of electricity transacted in bilateral market through direct transactions and traders in the month of August, 2021 were **2,138.48 MU** and **5,486.76 MU** respectively. The details of Bilateral buy and sell Transactions of Electricity happened during August, 2021 have been shown in Tables Below:

Volume (MU)	Buy		Total Buy (MU)	Sell		Total Sell (MU)
	Direct	Traders		Direct	Traders	
Total	2,086.57	5,538.92	7,625.49	2,138.48	5,486.76	7,625.24
Maximum	479.95	1487.18	-	455.20	779.98	-
Minimum	0.03	0.66	-	0.20	0.10	-

Table -7A

The region-wise maximum/ minimum volume of electricity for buy and sell happened bilaterally during August, 2021 is given in tables below:

(i) Region-wise Buy Volume:

Region-wise Volume (MU)	ER		WR		NR		SR		NER	
	Direct	Trader	Direct	Trader	Direct	Trader	Direct	Trader	Direct	Trader
Total	186.57	778.95	487.56	448.85	1,301.23	4,041.11	111.22	267.00	0.00	3.01
Maximum	106.09	297.71	156.92	233.25	479.95	1,487.18	95.60	248.64	0.00	3.01
Minimum	19.91	22.11	10.86	1.47	10.19	0.66	0.03	18.36	0.00	3.01

Table -7B

(ii) Region-wise Sell Volume:

Region-wise Volume (MU)	ER		WR		NR		SR		NER	
	Direct	Trader	Direct	Trader	Direct	Trader	Direct	Trader	Direct	Trader
Total	319.01	1,135.19	1,044.36	1,909.66	709.07	1,258.92	66.04	1,058.85	0.00	124.13
Maximum	203.99	441.97	455.20	627.37	335.28	779.98	35.57	444.40	0.00	49.78
Minimum	8.93	0.48	0.20	1.37	0.24	0.10	0.78	1.97	0.00	0.22

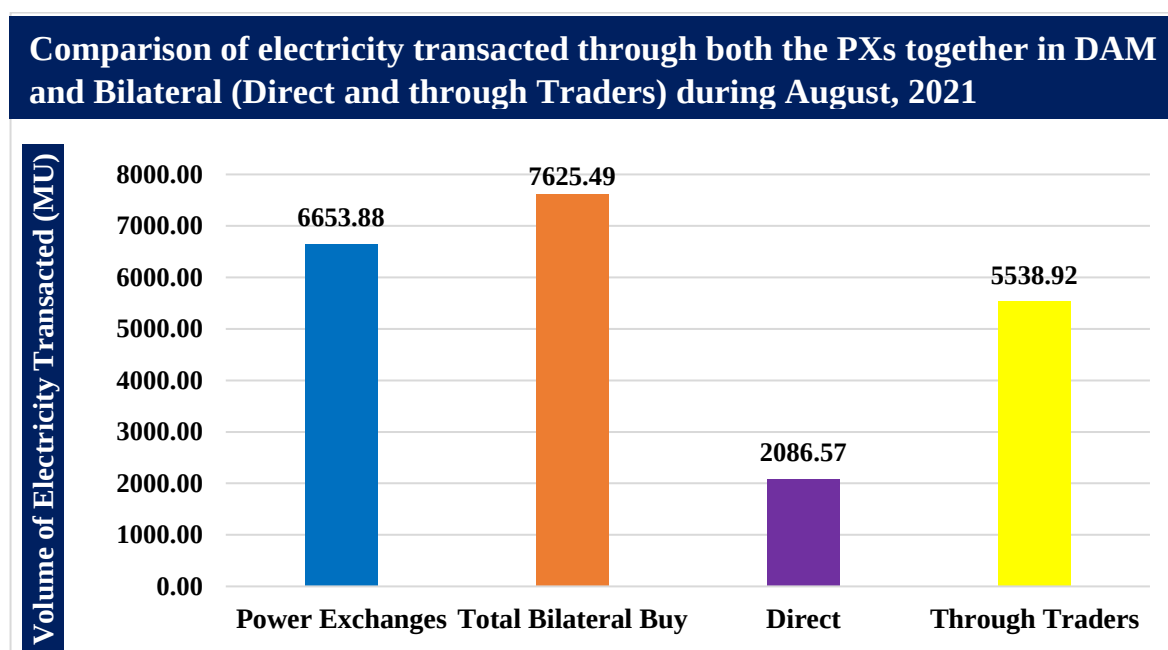
Table -7C

6.1. The **top 5 buyers** on bilateral transaction through direct transactions in the month of August, 2021 were **Punjab, Haryana, Uttar Pradesh, Madhya Pradesh and AMNSIL_WR**, which constituted **70.51%** of the market volume. Whereas **top 5 buyers** on bilateral transaction through traders in the month of August, 2021 were **Haryana, Punjab, Delhi, Uttar Pradesh and Odisha**, which constituted **77.37%** of the market volume. [Annexure III]

6.2. The **top 5 sellers** on bilateral transaction through direct transactions in the month of August, 2021 were **Madhya Pradesh, Rajasthan, DVC, Dhariwal and SKS Raigarh**, which constituted **60.94%** of the market volume. Whereas **top 5 sellers** on bilateral transaction through traders in the month of August, 2021 were **Himachal Pradesh, Raipur Energen, Karnataka, JITPL and TEESTA III TUL**, which constituted **49.58%** of the market volume. [Annexure III]

6.3. Deviation Import and Export Volume - The total volume of Deviation observed in the month of August, 2021 were **2465.17 MU** in import and **2178.62 MU** in export respectively.

6.4. A comparison of volume of electricity transacted through both the Power Exchanges together in DAM and Bilateral **Buy (i.e. Direct and through traders)** in the month of August, 2021 is shown in **Figure 1:**

**Figure -1**

7. ANALYSIS OF MOVEMENT OF PRICES OBSERVED IN DAM DURING AUGUST, 2021

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 August, 2021 month. The observations made are as under:

- 7.1. In order to find out the determinants which are responsible for the Daily MCP, a regression analysis has been carried out where the Daily 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.
- 7.2. A double log function was used so that elasticity of Daily MCP could be read off from the coefficients of independent variables. The regression analysis revealed that the significant variables were the total purchase bid and total sell bid, whereas all the other variables were found to be insignificant. Further, the regression analysis revealed that the elasticity of the Daily MCP with respect to total purchase bid was **1.53**, which signifies that there is high multi-collinearity among the predictor variables/ independent variables used in regression analysis. In effect, the regression analysis reveals that the most important variable which determines daily market clearing price is the total purchase bid in the month of August, 2021.
- 7.3. The same relationship is visible from the analysis carried out from the plot in **Figure 2**.

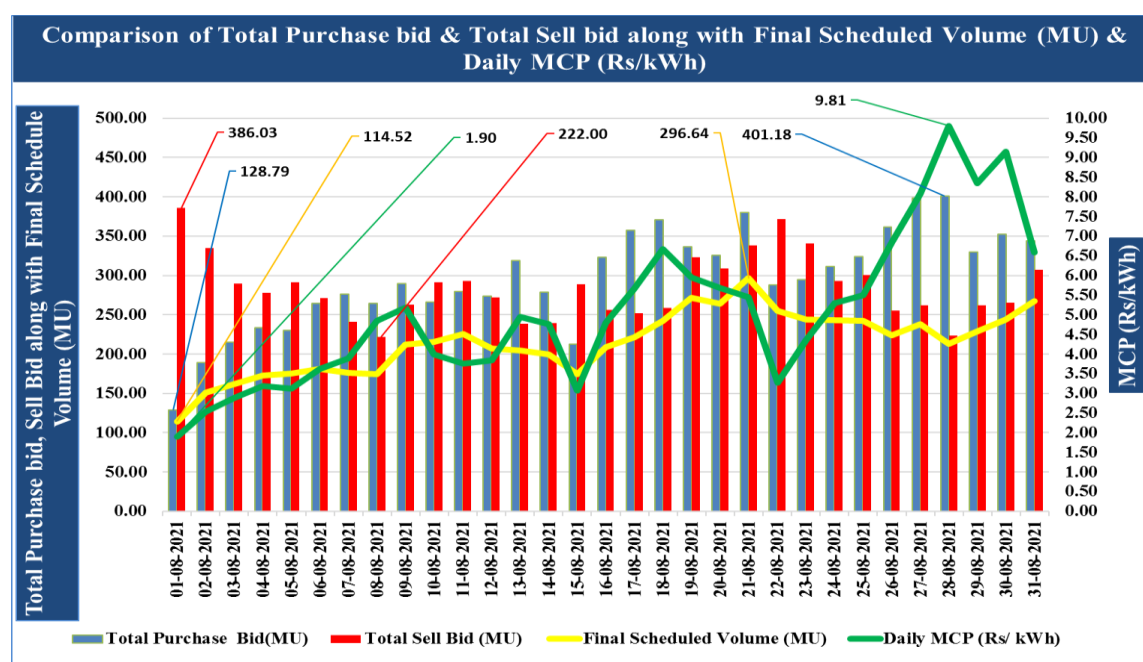


Figure -2

- 7.4. Invariably, the Final Scheduled Volume (MU) and the Daily MCP (Rs/kWh) showed decreasing trend on Sundays as the demand of electricity in the country is less compared to other days of week. However, during the month of August, 2021, it is observed that on fourth Monday (23rd August, 2021) and fourth Saturday (28th August, 2021), FSV showed decreasing trend in comparison to fourth Sunday (22nd August, 2021) and fifth Sunday (29th August, 2021) respectively. The detailed analysis on this is given at **Appendix-I**.

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

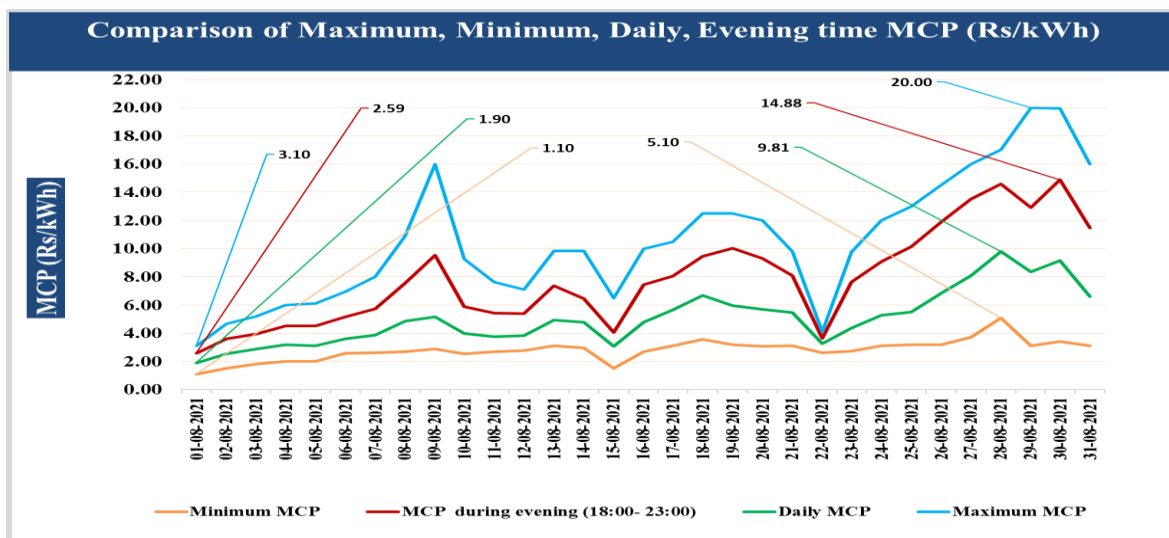


Figure -3

- 7.6. The Market Clearing Price duration curves for time block wise MCP for the month of August, 2021 is shown in **Figure 4**, whereas the day wise MCP duration curve for the period 1st April, 2021 to 31st August, 2021 is shown in **Figure 5**.

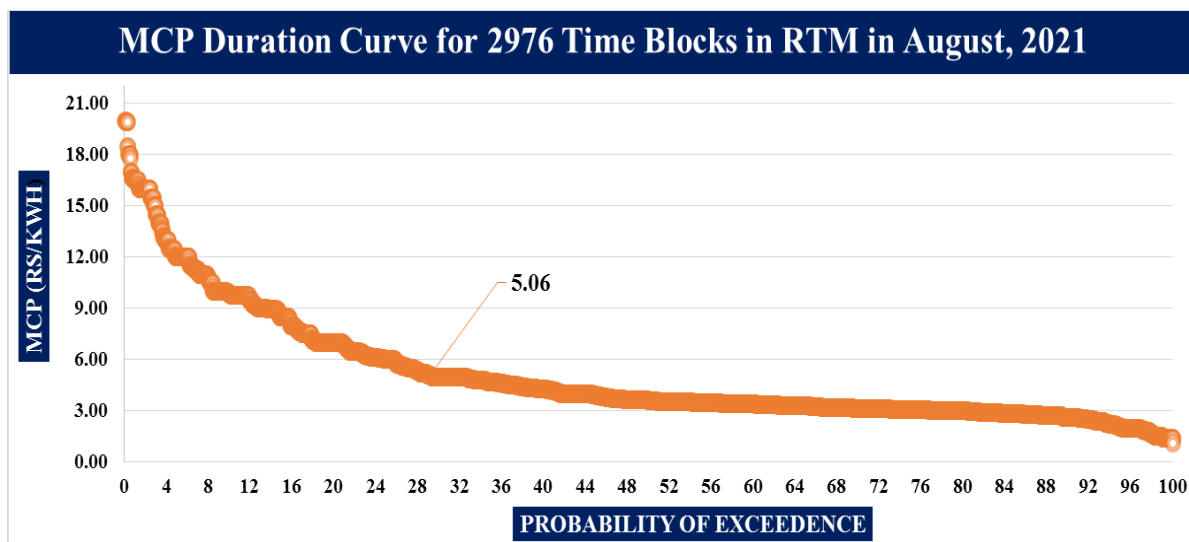


Figure-4

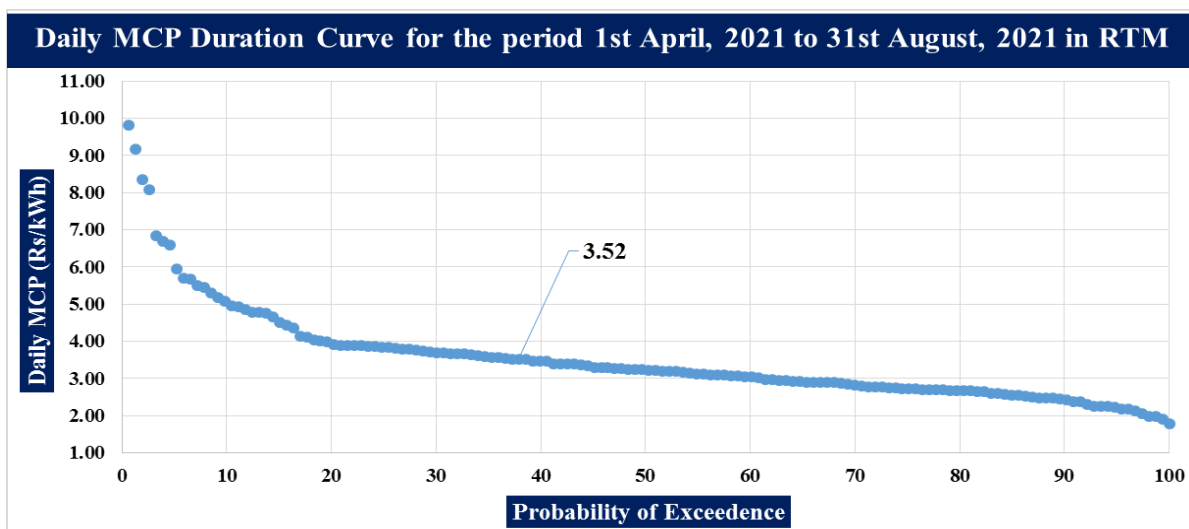


Figure-5

- 7.7. It can be seen in **Figure 4 above** that in the MCP duration curve of August, 2021, for **29.17 %** of the time, the MCP was above average MCP of the month (i.e. **Rs. 5.06/kWh**) and almost **70.83 %** of the time MCP was below average MCP of the month. Similarly, it can be seen in the cumulative MCP duration curve from 1st April, 2021 to 31st August, 2021 (**Figure 5**), that for **37.91 %** of the time, the daily MCP was above the average MCP for the period (i.e. **Rs. 3.52/kWh**) and for **62.09%** of the time, the daily MCP was below the average MCP for the period.
- 7.8. 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**.
- 7.9. On **26 days** during the month, the maximum FSV occurred during the **time period 07:00-07:45 Hrs. [Annexure VI]**
- 7.10. On **16 days** during the month, the maximum MCP occurred during the **time period 19:00-20:00 Hrs and on 15 days** maximum MCP occurred during the **time period 21:15-22:30 Hrs. [Annexure VI]**
- 7.11. On **13 days** during the month, the minimum MCP occurred during the **time period 13:00-13:45 Hrs. [Annexure VI]**
- 7.12. The maximum demand met during the month of August, 2021 in the country occurred on **16th August, 2021 at 196.25 GW**, which is 2.15 % less than the maximum demand occurred during **July, 2021 [i.e. 200.57 GW on 07th July, 2021]** and is 17.16 % more than the maximum demand occurred during August, 2020 i.e. **[167.50 GW on 08th August, 2020]**.
- 7.13. In the month of August, 2021, One nation One Price was observed in IEX for **all 31 days** during the month, as there was no transmission congestion. Whereas, in PXIL also, there was no congestion in transmission system during August, 2021, so one nation one price was observed on **14 days** during which transaction of electricity happened (i.e. 03rd to 04th, 06th to 11th, 17th, 19th to 21st and 30th to 31st August, 2021). While in the month of July, 2021, One nation One Price was observed in IEX for **all 31 days** during the month, as there was no transmission congestion. Whereas, in PXIL also, there was no congestion in transmission system during July, 2021, so one nation one price was observed on **11 days** during which transaction of electricity happened (i.e. 01st to 04th, 06th to 07th, 14th to 17th and 20th July, 2021). Similarly, in the month of August, 2020, there was no congestion in transmission system in IEX, hence, one nation one price was observed for all 31 days on IEX. In PXIL also, there was no congestion in transmission system, so one nation one price was observed on all 7 days during which transaction of electricity happened (25th to 31st August, 2020).
- 7.14. In the month of August, 2021, there was real time curtailment of **5.13 MU** in IEX, whereas, in PXIL, there was no real time curtailment during August, 2021. Further, there was no real time curtailment in both IEX and PXIL during July, 2021. In August, 2020 also, there was **no** real time curtailment in IEX and PXIL.

- 7.15. The **top 10 sellers** on the power exchanges in **Day Ahead Market (DAM)** in the month of August, 2021 were **Karnataka, Uttar Pradesh, Himachal Pradesh, Sembcorp Gayatri, Odisha, Jindal Power, Telangana, Teesta-3, Jindal Power Ltd. Stg-II and Kerala**, which constituted **56.54%** of the market volume. [Annexure VII]
- 7.16. The **top 10 purchasers** on the power exchanges in **Day Ahead Market (DAM)** in the month of August, 2021 were **Gujarat, Punjab, Andhra Pradesh, Rajasthan, Maharashtra, Telangana, Haryana, Tamil Nadu, Bihar and Uttarakhand**, which constituted **90.54 %** of the market volume. [Annexure VII]
- 7.17. The total volume of electricity purchased by Discoms/Licensees in DAM in the month of August, 2021 was **6,650.37 MU**, which constituted **99.95%** of total volume of electricity purchased on both the power exchanges.
- 7.18. Similarly, the total volume of electricity purchased by Discoms/Licensees in DAM in the month of July, 2021 was **4,213.45 MU**, which constituted **99.35%** of total volume of electricity purchased on both the power exchanges.

8. ANALYSIS OF MOVEMENT OF PRICES OBSERVED IN REAL TIME MARKET (RTM) TRANSACTIONS IN AUGUST, 2021

- 8.1. 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 were the total Purchase Bid and hydro generation, whereas all the other variables were found to be insignificant. Further, the regression analysis revealed that the elasticity of the Daily MCP with respect to total Purchase Bid was **0.61**. In effect, the regression reveals that the most important variable which determines daily market clearing price is the total purchase bid in the month of August, 2021 for RTM transactions.
- 8.2. 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**.
- 8.3. The Total Purchase Bid, Total Sell Bid, Daily MCP and FSV are shown in Figure-6 below:

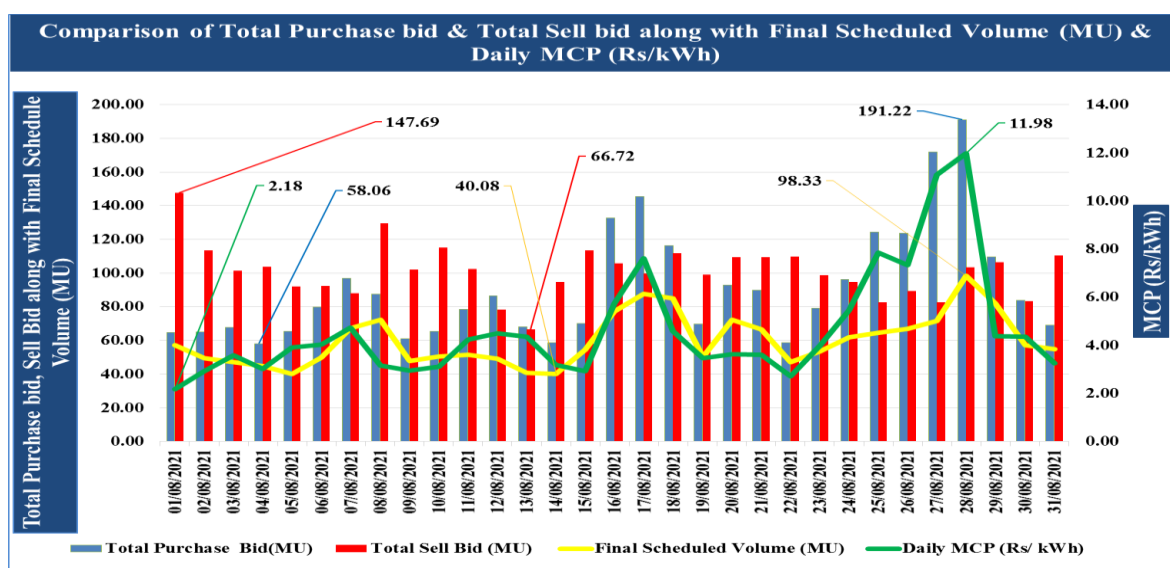


Figure-6

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

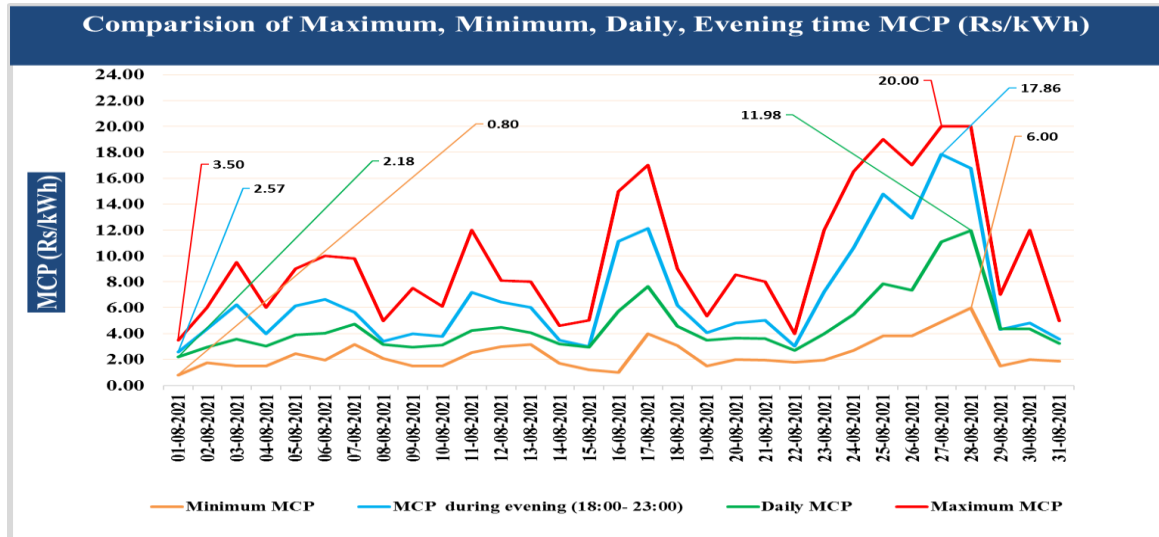


Figure-7

- 8.5. The Market Clearing Price duration curves for time block wise MCP for the month of July, 2021 is shown in **Figure 8**, whereas the day wise MCP duration curve for the period 1st April, 2021 to 31st August, 2021 is shown in **Figure 9**.

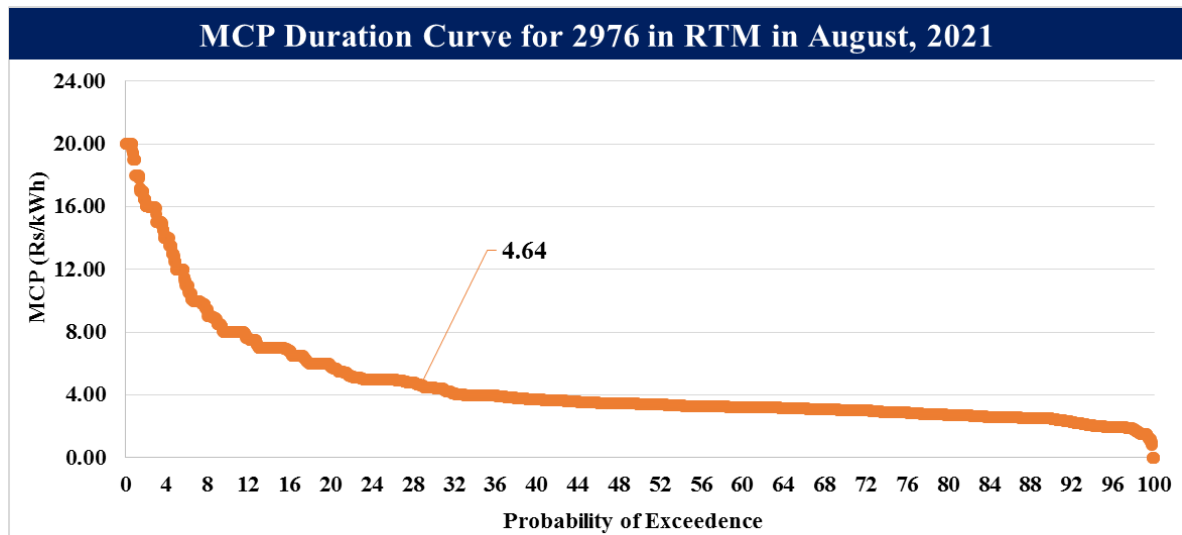


Figure-8

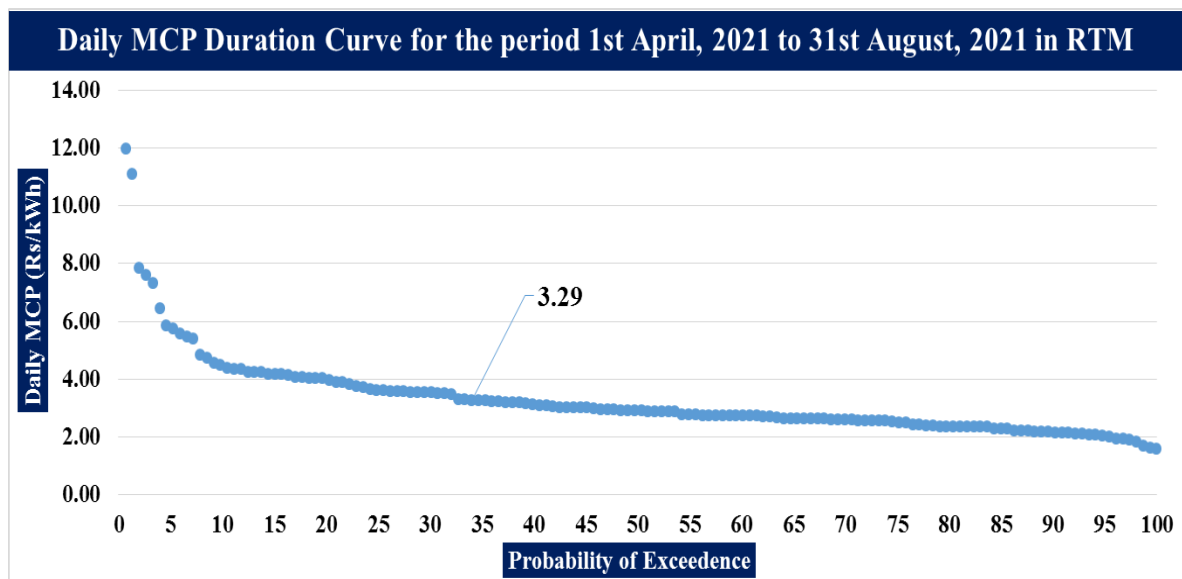


Figure-9

- 8.6.** It can be seen in **Figure 8** above that in the MCP duration curve of August, 2021, for **28.66 %** of the time, the MCP was above the average MCP of the month (i.e. **Rs. 4.64/kWh** and for **71.34 %** 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, 2021 to 31st August, 2021 (**Figure 9**) that, for **33.33 %** of the time, the daily MCP was above the average MCP for the period (i.e. **Rs. 3.29/kWh**) and for **66.67 %** of the time, the daily MCP was below the average MCP for the period.
- 8.7.** On **10 days** during the month, the maximum FSV occurred during the **time period 22:45-24:00 Hrs. [Annexure X]**
- 8.8.** On **18 days** during the month, the maximum MCP occurred during the **time period 19:15-20:45 Hrs. [Annexure X]**
- 8.9.** There was **no** real time curtailment in IEX in Real Time Market (RTM) during August, 2021 and July, 2021, whereas, no transaction of electricity happened in PXIL during August, 2021 and July, 2021. In August, 2020, there was no real time curtailment in IEX, whereas, no transaction of electricity happened in PXIL during August, 2020 in Real Time Market (RTM).
- 8.10.** In the month of August, 2021, there was transmission congestion of **9.35 MU** in IEX in Real Time Market for 17 days (1st to 02nd August, 10th to 21st August, 26th August, 29th August and 31st August, 2021), hence, one nation one price was observed for **14 days** only in IEX during August, 2021. Whereas, in PXIL, no transaction of electricity happened in August, 2021 in Real Time Market. Further, in the month of July, 2021, there was transmission congestion of **26.01 MU** in IEX in Real Time Market for 27 days (1st to 19th July, 21st to 27th July and 31st July, 2021), hence, one nation one price was observed for **4 days** only in IEX during July, 2021. Whereas, in PXIL, no transaction of electricity happened in July, 2021 in Real Time Market. In the month of August, 2020, there was no congestion in transmission system in IEX in Real Time Market. Hence, one nation one price was observed for all **31 days** in IEX. Whereas, in PXIL, no transaction of electricity happened in August, 2020 in Real Time Market.
- 8.11.** The **top 10 sellers** on the power exchanges in Real Time Market (RTM) in the month of August, 2021 were **J&K, Telangana, Odisha, Uttar Pradesh, West Bengal, Karnataka, Delhi, Kerala, Kameng HEP and Madhya Pradesh**, which constituted **63.64 %** of the market volume. **[Annexure XI]**
- 8.12.** The **top 10 purchasers** on the power exchanges in Real Time Market (RTM) in the month of August, 2021 were **Rajasthan, Gujarat, Andhra Pradesh, Telangana, Haryana, Uttar Pradesh, West Bengal, Tamilnadu, Delhi and Bihar**, which constituted **81.46%** of the market volume. **[Annexure XI]**

8.13. The total volume of electricity purchased by Discoms/Licensees in RTM in the month of August, 2021 was **1,833.50 MU**, which constituted **98.60 %** of total volume of electricity purchased on both the power exchanges.

8.14. Similarly, the total volume of electricity purchased by Discoms/Licensees in RTM in the month of July, 2021 was **1,584.85 MU**, which constituted **99.30%** of total volume of electricity purchased on both the power exchanges.

-
- Source DAM, TAM and RTM data: IEX and PXIL
 - 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, 2021 to March, 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, 2021	5,699.22	4.73	3.70	3.69	0	0
	May, 2021	4,363.88	3.32	2.83	3.06	0	0
	June, 2021	4,314.17	21.91	3.06	3.35	2.35	0
Total Quarter -I	April - June, 2021	14,377.27	29.96			2.35	0
Quarter- II	July, 2021	4,238.25	2.76	2.95	3.02	0	0
	August, 2021	6,648.76	5.12	5.06	4.72	5.13	0
	September, 2021						
Total Quarter- II	July- September, 2021	10,887.01	7.88			5.13	0
Total April, 2021 - March, 2022		25,264.28	37.84			7.48	0

Annexure-II
Final Scheduled Volume in Term Ahead Market (TAM) for the months of April, 2021 to March, 2022 of IEX and PXIL (Trade and Delivery date basis)

Quarter	Months	Final Scheduled Volume (MU) on Trade Date Basis		
		IEX	PXIL	Total
Quarter -I	April, 2021	325.78	651.35	977.13
	May, 2021	425.63	344.03	769.66
	June, 2021	622.42	358.74	981.16
Total Quarter -I	April- June, 2021	1,373.83	1,354.12	2,727.95
Quarter- II	July, 2021	832.44	267.10	1,099.54
	August, 2021	483.31	284.40	767.71
	September, 2021			
Total Quarter -II	July- September, 2021	1,315.75	551.50	1,867.25
Total April, 2021 - March, 2022		2,689.58	1,905.62	4,595.20

Quarter	Months	Final Scheduled Volume (MU) on Delivery Date Basis		
		IEX	PXIL	Total
Quarter -I	April, 2021	348.58	576.72	925.30
	May, 2021	382.62	419.36	801.98
	June, 2021	640.91	312.66	953.57
Total Quarter -I	April- June, 2021	1,372.11	1,308.74	2,680.85
Quarter- II	July, 2021	761.26	332.72	1,093.98
	August, 2021	617.23	238.63	855.86
	September, 2021			
Total Quarter -II	July- September, 2021	1,378.49	571.35	1,949.84
Total April, 2021 - March, 2022		2,750.60	1,880.09	4,630.69

Top Five Entities (Buyers and Sellers) in Bilateral transactions in the month of August, 2021

(i) Top five Buyers in Bilateral transactions

Entity Name	Direct		Entity Name	Through Traders	
	(MU)	Percent		(MU)	Percent
Punjab	479.95	23.00%	Haryana	1487.18	26.85%
Haryana	354.84	17.01%	Punjab	1219.32	22.01%
Uttar Pradesh	346.56	16.61%	Delhi	979.40	17.68%
Madhya Pradesh	156.92	7.52%	Uttar Pradesh	301.82	5.45%
AMNSIL_WR	132.88	6.37%	Odisha	297.71	5.37%
Total Volume	1471.15	70.51%	Total Volume	4285.42	77.37%
Total Volume in Bilateral	2086.57		Total Volume in Bilateral	5538.92	

(ii) Top five Sellers in Bilateral transactions

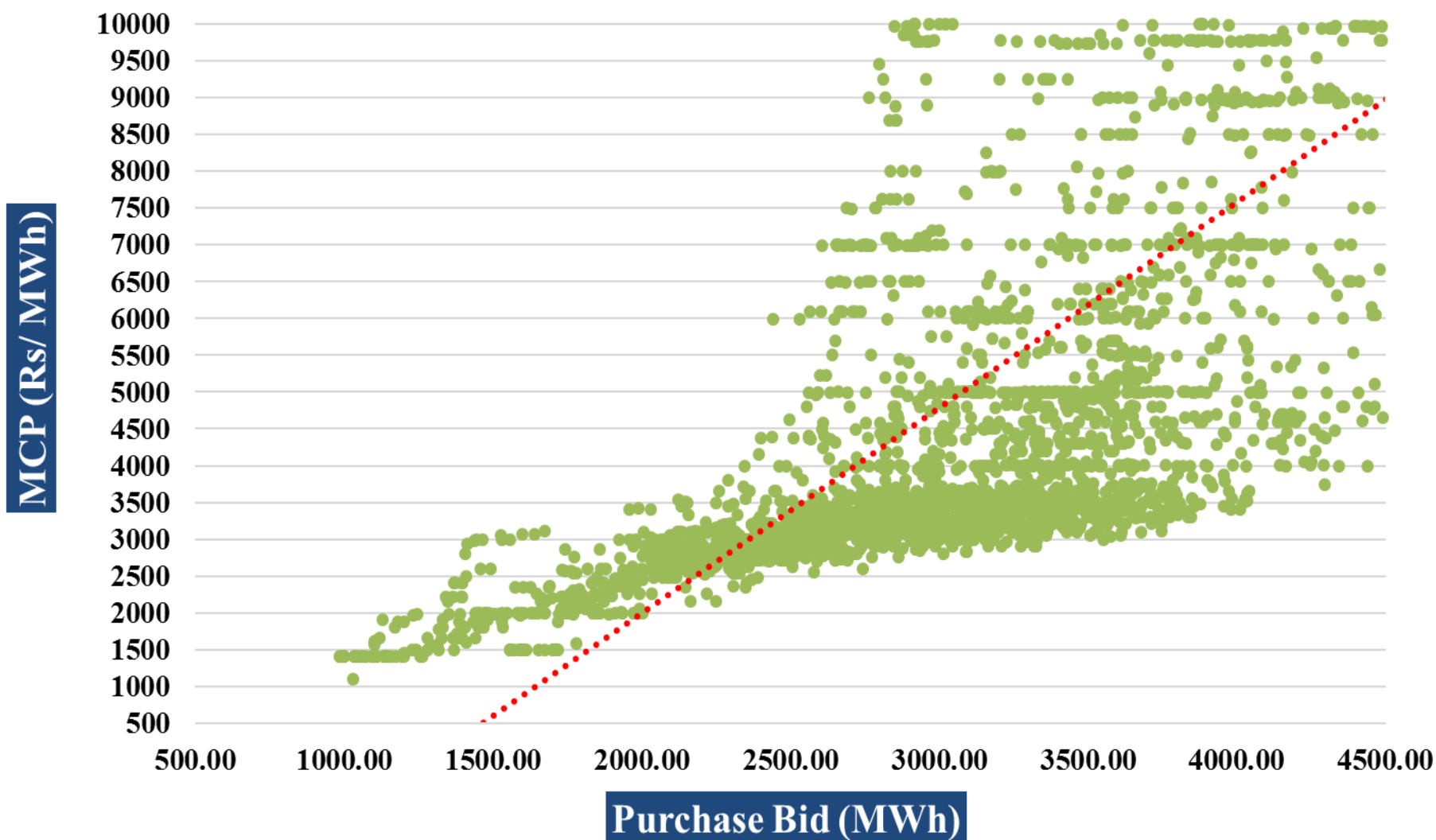
Entity Name	Direct		Entity Name	Through Traders	
	(MU)	Percent		(MU)	Percent
Madhya Pradesh	455.20	21.29%	Himachal Pradesh	779.98	14.22%
Rajasthan	335.28	15.68%	Raipur Energen	627.37	11.43%
DVC	203.99	9.54%	KARNATAKA	444.40	8.10%
DHARIWAL	170.32	7.96%	JITPL	441.97	8.06%
SKS Raigarh	138.36	6.47%	TEESTA III TUL	426.61	7.78%
Total Volume	1303.15	60.94%	Total Volume	2720.32	49.58%
Total Volume in Bilateral	2138.48		Total Volume in Bilateral	5486.76	

Annexure-IV

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

Date	MCP during night (01:00-06:00, 23:00-24:00)	MCP during morning (07:00- 10:00)	MCP during day (11:00- 17:00)	MCP during evening (18:00- 23:00)	Maximum MCP	Minimum MCP	Average MCP	Final Scheduled Volume (MU)	M C P : M a r k e t C l e a r i n g P r i c e (R s / k W h) A n n e
01-08-2021	1.63	2.00	1.53	2.59	3.10	1.10	1.90	114.52	
02-08-2021	2.14	2.36	2.09	3.61	4.66	1.50	2.53	150.90	
03-08-2021	2.28	2.97	2.50	3.95	5.20	1.80	2.88	161.60	
04-08-2021	2.58	3.03	2.77	4.50	6.00	2.01	3.19	172.89	
05-08-2021	2.66	3.05	2.43	4.52	6.10	2.00	3.12	174.87	
06-08-2021	3.26	3.33	2.80	5.18	6.95	2.57	3.62	181.42	
07-08-2021	3.61	3.35	2.88	5.75	8.00	2.62	3.89	176.15	
08-08-2021	5.05	3.52	3.06	7.56	10.90	2.70	4.84	174.38	
09-08-2021	4.34	3.59	3.20	9.53	16.00	2.87	5.18	212.40	
10-08-2021	3.63	3.42	3.03	5.88	9.25	2.55	3.98	215.70	
11-08-2021	3.20	3.40	3.10	5.42	7.62	2.70	3.76	225.80	
12-08-2021	3.54	3.49	3.03	5.37	7.10	2.76	3.84	207.23	
13-08-2021	4.61	4.33	3.57	7.38	9.85	3.10	4.95	204.23	
14-08-2021	4.87	4.55	3.34	6.46	9.85	2.95	4.77	199.33	
15-08-2021	3.08	3.49	2.00	4.06	6.49	1.50	3.08	174.30	
16-08-2021	4.03	4.25	3.58	7.44	9.98	2.71	4.79	209.10	
17-08-2021	6.17	4.83	3.59	8.04	10.49	3.10	5.67	221.15	
18-08-2021	7.44	5.35	4.29	9.46	12.50	3.55	6.68	242.24	
19-08-2021	5.80	4.41	3.46	10.03	12.50	3.19	5.94	271.41	
20-08-2021	5.21	4.95	3.50	9.29	12.00	3.07	5.69	264.30	
21-08-2021	4.45	5.10	4.36	8.11	9.79	3.10	5.45	296.64	
22-08-2021	3.32	3.34	2.86	3.65	4.09	2.62	3.27	255.07	
23-08-2021	3.24	3.44	3.18	7.65	9.77	2.75	4.36	243.59	
24-08-2021	4.42	3.41	3.97	9.09	12.00	3.10	5.29	243.01	
25-08-2021	4.76	3.46	3.41	10.12	13.00	3.19	5.49	242.08	
26-08-2021	6.55	4.91	3.91	11.88	14.50	3.20	6.84	223.50	
27-08-2021	8.14	5.41	4.87	13.52	16.00	3.73	8.08	238.48	
28-08-2021	10.16	7.68	6.59	14.57	17.00	5.10	9.81	212.56	
29-08-2021	7.97	9.64	4.06	12.92	20.00	3.10	8.34	229.00	
30-08-2021	6.91	11.03	5.43	14.88	19.96	3.40	9.16	243.58	
31-08-2021	4.47	7.00	4.30	11.47	16.00	3.10	6.59	267.34	
Maximum	10.16	11.03	6.59	14.88	20.00	5.10	9.81	296.64	
Minimum	1.63	2.00	1.53	2.59	3.10	1.10	1.90	114.52	
Average	4.63	4.46	3.44	7.87	10.54	2.80	5.06	214.48	

Comparison of MCP w.r.t. Purchase Bid for 2,976 Time Blocks during the month of August, 2021



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 (Rs/kWh)		Min FSV (MU)		Min. MCP (Rs/kWh)	
	Time Block	Value	Time Block	Value	Time Block	Value	Time Block	Value
01-08-2021	07:15 - 07:30	1.79	19:45 - 20:00	3.10	10:45 - 11:00	0.93	04:00 - 04:15	1.10
02-08-2021	07:30 - 07:45	2.13	21:45 - 22:00	4.66	12:30 - 12:45	1.13	13:00 - 13:15	1.50
03-08-2021	07:00 - 07:15	2.66	21:30 - 21:45	5.20	03:15 - 03:30	1.17	03:45 - 04:00	1.80
04-08-2021	07:00 - 07:15	2.72	21:30 - 21:45	6.00	05:00 - 05:15	1.32	03:45 - 04:00	2.01
05-08-2021	07:15 - 07:30	2.84	21:15 - 21:30	6.10	04:45 - 05:00	1.27	13:15 - 13:30	2.00
06-08-2021	07:15 - 07:30	2.97	21:15 - 21:30	6.95	03:45 - 04:00	1.49	13:15 - 13:30	2.57
07-08-2021	07:00 - 07:15	2.88	21:45 - 22:00	8.00	03:45 - 04:00	1.24	03:45 - 04:00	2.62
08-08-2021	07:00 - 07:15	2.93	19:45 - 20:00	10.90	21:00 - 21:15	1.44	17:45 - 18:00	2.70
09-08-2021	07:15 - 07:30	3.39	19:45 - 20:00	16.00	01:45 - 02:00	1.50	17:15 - 17:30	2.87
10-08-2021	07:00 - 07:15	3.16	21:45 - 22:00	9.25	02:30 - 02:45	1.56	17:30 - 17:45	2.55
11-08-2021	07:15 - 07:30	3.23	21:30 - 21:45	7.62	00:00 - 00:15	1.74	17:45 - 18:00	2.70
12-08-2021	07:15 - 07:30	3.08	21:45 - 22:00	7.10	19:00 - 19:15	1.67	13:00 - 13:15	2.76
13-08-2021	07:00 - 07:15	3.07	21:45 - 22:00	9.85	19:00 - 19:15	1.50	17:45 - 18:00	3.10
14-08-2021	07:15 - 07:30	3.08	22:00 - 22:15	9.85	19:00 - 19:15	1.64	17:45 - 18:00	2.95
15-08-2021	06:30 - 06:45	2.86	22:15 - 22:30	6.49	12:45 - 13:00	1.32	13:15 - 13:30	1.50
16-08-2021	07:15 - 07:30	3.20	21:45 - 22:00	9.98	03:45 - 04:00	1.63	02:30 - 02:45	2.71
17-08-2021	07:15 - 07:30	3.10	21:45 - 22:00	10.49	19:00 - 19:15	1.94	13:15 - 13:30	3.10
18-08-2021	07:00 - 07:15	3.00	19:30 - 19:45	12.50	09:15 - 09:30	2.25	13:00 - 13:15	3.55
19-08-2021	00:45 - 01:00	3.23	19:45 - 20:00	12.50	13:00 - 13:15	2.47	13:15 - 13:30	3.19
20-08-2021	07:15 - 07:30	3.17	19:45 - 20:00	12.00	10:00 - 10:15	2.41	13:00 - 13:15	3.07
21-08-2021	07:15 - 07:30	3.86	19:45 - 20:00	9.79	10:45 - 11:00	2.55	04:00 - 04:15	3.10
22-08-2021	07:00 - 07:15	3.62	21:30 - 21:45	4.09	12:00 - 12:15	1.94	13:15 - 13:30	2.62
23-08-2021	07:00 - 07:15	3.38	19:45 - 20:00	9.77	11:45 - 12:00	2.03	04:00 - 04:15	2.75
24-08-2021	07:15 - 07:30	3.12	19:30 - 19:45	12.00	02:45 - 03:00	2.21	08:15 - 08:30	3.10
25-08-2021	07:30 - 07:45	3.16	19:30 - 19:45	13.00	10:30 - 10:45	2.12	08:15 - 08:30	3.19
26-08-2021	07:15 - 07:30	3.01	19:15 - 19:30	14.50	10:15 - 10:30	1.95	13:15 - 13:30	3.20
27-08-2021	07:30 - 07:45	3.11	19:00 - 19:15	16.00	19:00 - 19:15	2.01	13:30 - 13:45	3.73
28-08-2021	07:15 - 07:30	2.98	19:15 - 19:30	17.00	19:15 - 19:30	1.74	16:00 - 16:15	5.10
29-08-2021	01:45 - 02:00	2.77	19:30 - 19:45	20.00	13:00 - 13:15	1.84	13:15 - 13:30	3.10
30-08-2021	00:00 - 00:15	2.92	19:45 - 20:00	19.96	09:15 - 09:30	2.32	03:45 - 04:00	3.40
31-08-2021	00:00 - 00:15	3.11	19:30 - 19:45	16.00	14:30 - 14:45	2.58	03:45 - 04:00	3.10

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

Annexure-VII**Sellers and Purchasers in Day Ahead Market (DAM) in the month of August, 2021**

S. No.	Entity Name	Sell		Entity Name	Purchase	
		(MU)	Percent (%)		(MU)	Percent (%)
1.	Karnataka	556.76	8.36%	Gujarat	2536.51	38.09%
2.	Uttar Pradesh	517.68	7.77%	Punjab	839.19	12.60%
3.	Himachal Pradesh	410.59	6.17%	Andhra Pradesh	655.16	9.84%
4.	Sembcorp Gayatri	392.42	5.89%	Rajasthan	458.96	6.89%
5.	Odisha	369.59	5.55%	Maharashtra	426.83	6.41%
6.	Jindal Power	364.67	5.48%	Telangana	308.36	4.63%
7.	Telangana	349.59	5.25%	Haryana	295.86	4.44%
8.	Teesta -3	304.39	4.57%	Tamil Nadu	239.40	3.60%
9.	Jindal Power Ltd. Stg-	250.24	3.76%	Bihar	149.19	2.24%
10.	Kerala	248.88	3.74%	Uttarakhand	119.93	1.80%
11.	Delhi	196.18	2.95%	Uttar Pradesh	113.81	1.71%
12.	J&K	147.86	2.22%	Madhya Pradesh	106.45	1.60%
13.	Bihar	132.97	2.00%	Assam	106.27	1.60%
14.	Rajasthan	123.28	1.85%	Delhi	65.94	0.99%
15.	Thermal Powertech	117.39	1.76%	West Bengal	62.46	0.94%
16.	MB Power	109.21	1.64%	DVC	27.57	0.41%
17.	Kameng HEP	102.50	1.54%	Dadra & Nagar Haveli	26.88	0.40%
18.	Madhya Pradesh	97.01	1.46%	Karnataka	24.81	0.37%
19.	JITPL	94.29	1.42%	Chhattisgarh	24.12	0.36%
20.	Maharashtra	86.50	1.30%	Goa WR	10.19	0.15%
21.	Essar Power MP Ltd	79.83	1.20%	Daman & Diu	9.68	0.15%
22.	Raipur Energen	79.61	1.20%	Kerala	9.47	0.14%
23.	Chhattisgarh	77.30	1.16%	Jharkhand	9.42	0.14%
24.	Ramagundam Stg-1	76.88	1.15%	ArcelorMittal Nippon	8.64	0.13%
25.	Jaypee Nigrie	75.16	1.13%	Odisha	8.40	0.13%
26.	Tashiding HEP	68.03	1.02%	Himachal Pradesh	8.37	0.13%
27.	Singoli Bhagwati	67.45	1.01%	NVVN (SNA) - NEA	3.49	0.05%
28.	Jorethang	65.45	0.98%	J&K	2.03	0.03%
29.	Talcher Stg-2	63.22	0.95%	Chandigarh	0.85	0.01%
30.	AD Hydro	53.59	0.80%	Manipur	0.37	0.01%
31.	NTPC Kudgi	52.37	0.79%	Meghalaya	0.30	0.00%
32.	Sainj HEP	52.07	0.78%	Tripura	0.09	0.00%
33.	Shree Cement	49.35	0.74%	Goa SR	0.01	0.00%
34.	Meghalaya	47.95	0.72%			
35.	ACBIL	46.46	0.70%			
36.	Dikchu	44.99	0.68%			
37.	RKM Power	44.55	0.67%			
38.	Jindal Steel	43.08	0.65%			
39.	Maruti Clean Coal	41.24	0.62%			
40.	Karcham Wangtoo	38.38	0.58%			

41.	GMR Kamalanga	37.93	0.57%			
42.	Assam	35.00	0.53%			
43.	Chandigarh	29.51	0.44%			
44.	West Bengal	26.23	0.39%			
45.	Adani Power STG2	26.08	0.39%			
46.	Bongaigaon	25.63	0.38%			
47.	Tamil Nadu	24.46	0.37%			
48.	Simhadri Stg-2	24.01	0.36%			
49.	Ramagundam Stg-3	23.63	0.35%			
50.	Jharkhand	22.79	0.34%			
51.	Andhra Pradesh	22.31	0.33%			
52.	Haryana	21.16	0.32%			
53.	Gujarat	20.46	0.31%			
54.	Arunachal Pradesh	18.22	0.27%			
55.	Raigarh Energy Ltd.	16.56	0.25%			
56.	Torrent Power	15.98	0.24%			
57.	Jhabua Power	12.16	0.18%			
58.	Chuzachen	11.72	0.18%			
59.	Mizoram	10.04	0.15%			
60.	Sikkim	9.32	0.14%			
61.	Goa WR	9.15	0.14%			
62.	Tripura	8.54	0.13%			
63.	Adani Power STG3	8.30	0.12%			
64.	DB Power	8.07	0.12%			
65.	Punjab	7.30	0.11%			
66.	Adhunik Power	7.10	0.11%			
67.	Lanco Budhil	6.26	0.09%			
68.	Rihand-III	6.19	0.09%			
69.	Palatana	5.75	0.09%			
70.	RGPP	5.25	0.08%			
71.	IL&FS	4.12	0.06%			
72.	DVC	3.56	0.05%			
73.	Nagaland	2.99	0.04%			
74.	Dhariwal	1.43	0.02%			
75.	Adani Wind Energy	0.85	0.01%			
76.	Adani Green Hybrid	0.68	0.01%			
77.	Talcher	0.64	0.01%			
78.	Kahalgaon	0.26	0.00%			
79.	Farakka	0.21	0.00%			
80.	Dadra & Nagar Haveli	0.18	0.00%			
81.	NLC TPS-II	0.06	0.00%			
Total Volume of top 10		3,764.80	56.54%	Total Volume of top 10	6,029.40	90.54%
Total Volume in PXs		6,659.01		Total Volume in PXs	6,659.01	

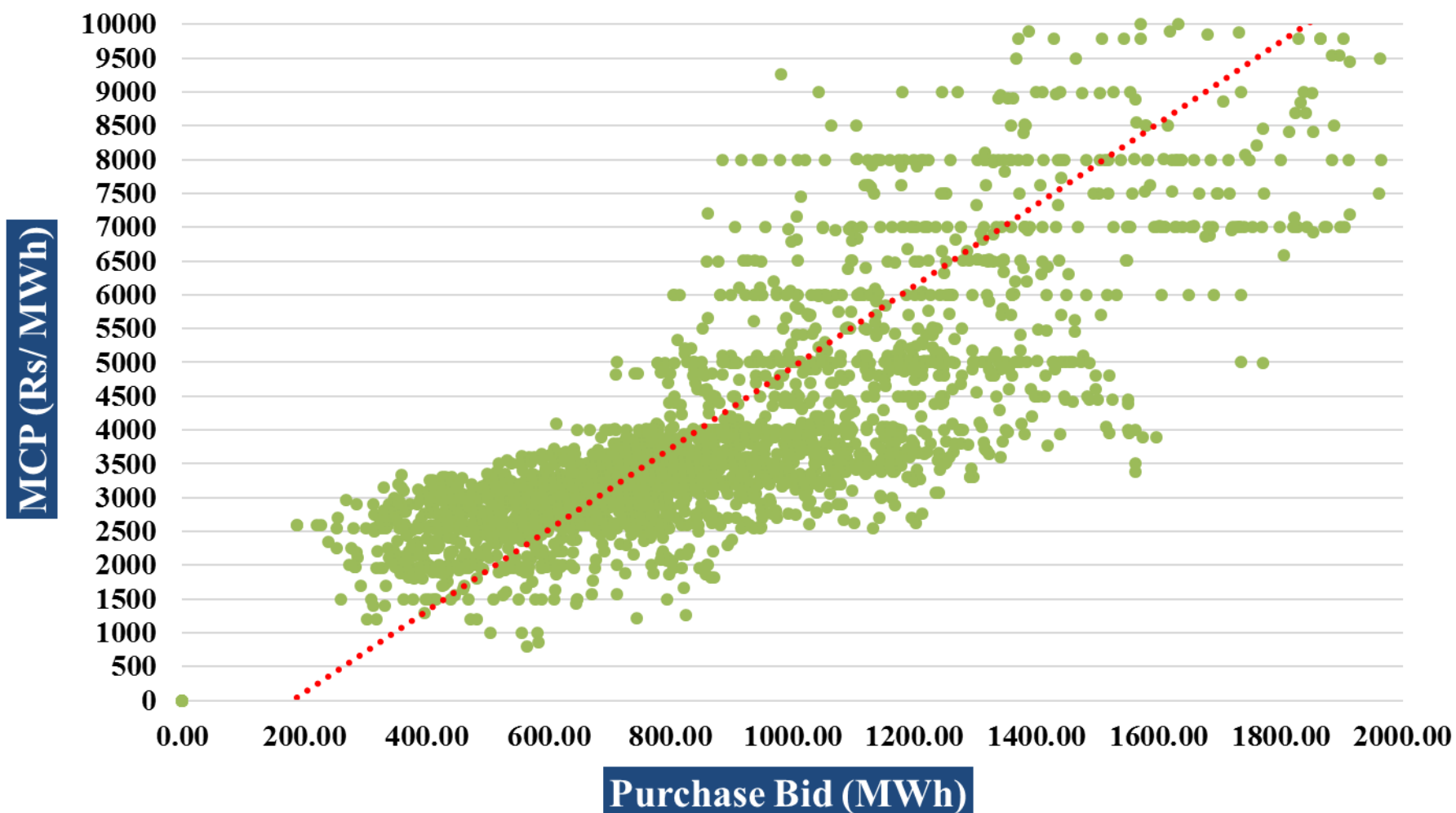
Annexure-VIII**Evening MCP, Day MCP, Night MCP, Morning MCP, Maximum MCP, Minimum MCP, Average MCP and Final Scheduled Volume (MU) in RTM**

Date	MCP during night (01:00-06:00, 23:00-)	MCP during morning (07:00-10:00)	MCP during day (11:00-17:00)	MCP during evening (18:00- 23:00)	Maximum MCP	Minimum MCP	Average MCP	Final Scheduled Volume (MU)
01-08-2021	2.39	2.23	1.62	2.57	3.50	0.80	2.18	57.17
02-08-2021	2.30	2.76	2.44	4.35	6.00	1.75	2.93	49.62
03-08-2021	2.61	2.85	2.73	6.21	9.50	1.50	3.58	47.18
04-08-2021	3.09	3.01	2.15	3.99	6.00	1.50	3.03	44.87
05-08-2021	3.47	2.98	2.95	6.14	9.00	2.45	3.91	40.11
06-08-2021	3.51	2.51	3.17	6.65	10.00	1.96	4.03	49.75
07-08-2021	4.57	5.26	3.82	5.65	9.78	3.16	4.74	67.20
08-08-2021	3.39	3.16	2.69	3.40	5.00	2.07	3.15	72.17
09-08-2021	2.26	2.57	2.96	4.00	7.50	1.50	2.95	47.68
10-08-2021	2.82	2.81	2.98	3.78	6.10	1.50	3.10	50.50
11-08-2021	3.50	3.26	3.03	7.19	12.00	2.55	4.24	51.36
12-08-2021	4.32	3.95	3.32	6.42	8.10	3.00	4.49	49.20
13-08-2021	4.06	4.04	3.14	6.01	8.00	3.14	4.08	40.88
14-08-2021	3.29	3.45	2.70	3.48	4.60	1.69	3.19	40.08
15-08-2021	3.34	3.04	2.41	2.99	5.01	1.20	2.93	54.39
16-08-2021	4.23	2.85	4.32	11.13	15.00	1.00	5.75	77.24
17-08-2021	6.44	6.04	5.86	12.13	17.00	4.00	7.63	87.83
18-08-2021	4.59	4.00	3.55	6.17	9.00	3.07	4.58	85.00
19-08-2021	3.06	3.42	3.39	4.08	5.34	1.50	3.47	50.30
20-08-2021	3.25	3.74	2.96	4.82	8.55	2.00	3.64	72.25
21-08-2021	3.12	3.24	3.04	5.03	8.00	1.96	3.59	66.63
22-08-2021	3.07	2.64	2.12	3.03	4.00	1.80	2.71	47.29
23-08-2021	2.65	2.57	3.30	7.24	11.99	1.96	3.97	53.66
24-08-2021	3.65	3.96	3.73	10.61	16.50	2.71	5.46	61.77
25-08-2021	5.82	5.23	5.40	14.80	19.00	3.80	7.84	64.70
26-08-2021	5.93	5.82	4.84	12.90	17.00	3.83	7.34	66.92
27-08-2021	8.71	10.59	7.99	17.86	20.00	4.90	11.10	71.55
28-08-2021	10.00	13.49	8.96	16.79	20.00	6.00	11.98	98.33
29-08-2021	5.30	4.54	3.43	4.30	7.00	1.50	4.38	81.91
30-08-2021	3.38	6.72	3.62	4.81	12.00	2.00	4.36	57.05
31-08-2021	3.54	3.08	2.76	3.56	5.00	1.88	3.24	54.86
Maximum	10.00	13.49	8.96	17.86	20.00	6.00	11.98	98.33
Minimum	2.26	2.23	1.62	2.57	3.50	0.80	2.18	40.08
Average	4.05	4.19	3.59	6.84	9.85	2.38	4.63	59.98

MCP: Market Clearing Price (Rs/kWh)

FSV: Final Scheduled Volume (MU)

Comparison of MCP w.r.t. Purchase Bid for 2,976 Time Blocks during the month of August, 2021



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

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
01-08-2021	15:00-15:15	0.85	21:00-21:15	3.50	18:45-19:00	0.31	13:00-13:15	0.80
02-08-2021	22:00-22:15	0.92	21:15-21:30	6.00	10:00-10:15	0.28	03:00-03:15	1.75
03-08-2021	22:45-23:00	0.93	21:30-21:45	9.50	09:15-09:30	0.24	04:15-04:30	1.50
04-08-2021	22:15-22:30	0.91	22:30-22:45	6.00	08:00-08:15	0.24	14:30-14:45	1.50
05-08-2021	23:45-24:00	0.81	21:30-21:45	9.00	08:45-09:00	0.16	04:00-04:15	2.45
06-08-2021	18:00-18:15	0.83	20:00-20:15	10.00	13:00-13:15	0.28	07:45-08:00	1.96
07-08-2021	15:15-15:30	1.13	20:00-20:15	9.78	06:15-06:30	0.35	18:00-18:15	3.16
08-08-2021	21:15-21:30	1.12	22:15-22:30	5.00	00:30-00:45	0.43	17:30-17:45	2.07
09-08-2021	21:45-22:00	0.97	19:30-19:45	7.50	09:00-09:15	0.23	03:30-03:45	1.50
10-08-2021	23:00-23:15	0.74	19:45-20:00	6.10	17:45-18:00	0.23	18:00-18:15	1.50
11-08-2021	06:30-06:45	0.87	21:15-21:30	12.00	11:45-12:00	0.27	03:45-04:00	2.55
12-08-2021	06:45-07:00	0.72	19:45-20:00	8.10	19:00-19:15	0.30	13:00-13:15	3.00
13-08-2021	22:45-23:00	0.75	20:15-20:30	8.00	15:15-15:30	0.22	18:00-18:15	2.74
14-08-2021	21:45-22:00	0.70	21:15-21:30	4.60	18:30-18:45	0.21	11:00-11:15	1.69
15-08-2021	23:45-24:00	0.93	07:15-07:30	5.01	09:30-09:45	0.30	09:30-09:45	1.20
16-08-2021	23:45-24:00	1.23	20:15-20:30	15.00	19:45-20:00	0.37	06:00-06:15	1.00
17-08-2021	23:45-24:00	1.41	20:30-20:45	17.00	09:15-09:30	0.42	13:00-13:15	4.00
18-08-2021	01:30-01:45	1.41	19:15-19:30	9.00	13:00-13:15	0.55	13:00-13:15	3.07
19-08-2021	14:15-14:30	0.80	19:15-19:30	5.34	07:00-07:15	0.33	04:00-04:15	1.50
20-08-2021	19:45-20:00	1.20	19:15-19:30	8.55	04:30-04:45	0.39	17:00-17:15	2.00
21-08-2021	10:15-10:30	1.12	20:15-20:30	8.00	06:00-06:15	0.38	23:45-24:00	1.96
22-08-2021	03:00-03:15	0.72	23:15-23:30	4.00	16:45-17:00	0.31	10:00-10:15	1.80
23-08-2021	15:00-15:15	1.01	21:00-21:15	11.99	08:15-08:30	0.26	05:00-05:15	1.96
24-08-2021	22:15-22:30	0.97	20:00-20:15	16.50	09:00-09:15	0.38	13:00-13:15	2.71
25-08-2021	16:45-17:00	1.04	20:15-20:30	19.00	19:15-19:30	0.37	08:00-08:15	3.80
26-08-2021	23:00-23:15	1.06	19:30-19:45	17.00	04:00-04:15	0.42	15:00-15:15	3.83
27-08-2021	23:15-23:30	1.17	19:45-20:00	20.00	19:00-19:15	0.54	04:15-04:30	4.90
28-08-2021	23:30-23:45	1.44	19:15-19:30	20.00	08:00-08:15	0.70	08:00-08:15	6.00
29-08-2021	14:00-14:15	1.28	00:30-00:45	7.00	22:15-22:30	0.46	18:00-18:15	1.50
30-08-2021	13:15-13:30	0.75	07:00-07:15	12.00	10:30-10:45	0.49	04:00-04:15	2.00
31-08-2021	07:30-07:45	0.93	20:00-20:15	5.00	19:00-19:15	0.36	15:00-15:15	1.88

MCP: Market Clearing Price (Rs/kWh)

FSV: Final Scheduled Volume (MU)

Annexure-XI**Sellers and Purchasers in Real Time Market (RTM) in the month of August, 2021**

S. No.	Entity Name	Sell		Entity Name	Purchase	
		(MU)	Percent (%)		(MU)	Percent (%)
1.	J&K	303.29	16.40%	Rajasthan	330.61	17.87%
2.	Telangana	186.54	10.08%	Gujarat	221.62	11.98%
3.	Orissa	124.16	6.71%	Andhra Pradesh	196.93	10.65%
4.	Uttar Pradesh	113.34	6.13%	Telangana	167.61	9.06%
5.	West Bengal	103.36	5.59%	Haryana	113.42	6.13%
6.	Karnataka	102.27	5.53%	Uttar Pradesh	112.69	6.09%
7.	Delhi	78.29	4.23%	West Bengal	112.01	6.06%
8.	Kerala	62.94	3.40%	Tamilnadu	96.53	5.22%
9.	Kameng HEP	61.86	3.34%	Delhi	86.88	4.70%
10.	Madhya Pradesh	41.07	2.22%	Bihar	68.48	3.70%
11.	Rajasthan	38.90	2.10%	Maharashtra	61.53	3.33%
12.	Bihar	35.11	1.90%	Madhya Pradesh	57.28	3.10%
13.	Rihand-III	34.56	1.87%	Orissa	43.82	2.37%
14.	Jindal Power Ltd. Stg-	32.84	1.78%	Punjab	37.89	2.05%
15.	Maharashtra	32.73	1.77%	Assam	31.49	1.70%
16.	NLC TPS-II Stg-2	31.55	1.71%	DVC	18.09	0.98%
17.	Himachal Pradesh	27.81	1.50%	Himachal Pradesh	14.76	0.80%
18.	Chhattisgarh	26.33	1.42%	Chhattisgarh	14.01	0.76%
19.	Tamilnadu	24.94	1.35%	Jharkhand	12.22	0.66%
20.	MB Power	24.45	1.32%	Karnataka	7.55	0.41%
21.	Jindal Power	21.71	1.17%	Dadra & Nagar Haveli	7.24	0.39%
22.	Assam	18.03	0.97%	Kerala	6.50	0.35%
23.	NLC TPS-II	17.63	0.95%	Manipur	5.89	0.32%
24.	Tripura	15.83	0.86%	Essar Power MP Ltd	4.88	0.26%
25.	NLC	15.16	0.82%	Jindal Power	4.66	0.25%
26.	Jharkhand	14.76	0.80%	Uttarakhand	3.14	0.17%
27.	Ramagundam Stg-1	14.62	0.79%	Jindal Steel	2.02	0.11%
28.	Sasan UMPP	14.00	0.76%	Daman & Diu	1.78	0.10%
29.	RKM Power	13.98	0.76%	Jindal Power Ltd. Stg-II	1.42	0.08%
30.	Jhabua Power	12.20	0.66%	Tashiding HEP	1.20	0.06%
31.	Bongaigaon	10.69	0.58%	Jorethang	0.99	0.05%
32.	Sembcorp Gayatri	10.13	0.55%	Arunachal Pradesh	0.81	0.04%
33.	Haryana	9.83	0.53%	Tripura	0.77	0.04%
34.	Manipur	9.11	0.49%	ArcelorMittal Nippon	0.70	0.04%
35.	NTPC Kudgi	8.77	0.47%	J&K	0.69	0.04%
36.	Punjab	8.73	0.47%	Goa WR	0.52	0.03%
37.	Mouda Stg-2	8.73	0.47%	Meghalaya	0.47	0.03%
38.	Raipur Energen	8.44	0.46%	Sainj HEP	0.24	0.01%
39.	Simhadri Stg-2	7.44	0.40%	Sikkim	0.23	0.01%

40.	Andhra Pradesh	7.28	0.39%	Karcham Wangtoo	0.10	0.01%
41.	JITPL	7.23	0.39%	Chandigarh	0.03	0.00%
42.	Adani Power STG2	7.09	0.38%			
43.	Talcher Stg-2	5.86	0.32%			
44.	NTPC Gadarwara	5.57	0.30%			
45.	Mouda Stg-1	5.09	0.28%			
46.	Adani Power STG3	4.39	0.24%			
47.	Barh Stg-2	4.32	0.23%			
48.	Sikkim	4.04	0.22%			
49.	Karcham Wangtoo	4.01	0.22%			
50.	NTPC Sholapur	3.83	0.21%			
51.	Teesta -3	3.31	0.18%			
52.	Ramagundam Stg-3	3.23	0.17%			
53.	RGPP_LIR	3.18	0.17%			
54.	DB Power	2.92	0.16%			
55.	NLC TPS-II Expn	2.87	0.16%			
56.	ACBIL	2.83	0.15%			
57.	Sainj HEP	2.69	0.15%			
58.	Arunachal Pradesh	2.60	0.14%			
59.	Shree Cement	2.34	0.13%			
60.	Jindal Steel	2.32	0.13%			
61.	Torrent Power	2.29	0.12%			
62.	GMR Kamalanga	2.19	0.12%			
63.	Gujarat	2.15	0.12%			
64.	Palatana	2.05	0.11%			
65.	AD Hydro	2.05	0.11%			
66.	Meghalaya	1.98	0.11%			
67.	Simhadri Stg-1	1.83	0.10%			
68.	Khargone STPP	1.81	0.10%			
69.	Tanda Stg-2	1.73	0.09%			
70.	Farakka	1.61	0.09%			
71.	Neyveli New Thermal	1.60	0.09%			
72.	Dadri_RLNG Fuel	1.35	0.07%			
73.	AGTPP	1.35	0.07%			
74.	Raigarh Energy Ltd.	1.34	0.07%			
75.	Thermal Powertech	1.26	0.07%			
76.	DVC	1.02	0.06%			
77.	Auraiya_RLNG Fuel	1.01	0.05%			
78.	Singoli Bhagwati	1.01	0.05%			
79.	Dadra & Nagar Haveli	0.74	0.04%			
80.	Jorethang	0.69	0.04%			
81.	Kawas_RLNG Fuel	0.69	0.04%			
82.	Farakka Stg 3	0.61	0.03%			
83.	Dikchu	0.52	0.03%			
84.	IL&FS	0.51	0.03%			
85.	AGBPP	0.44	0.02%			

86.	Essar Power MP Ltd	0.32	0.02%			
87.	RGPPPL_Others	0.31	0.02%			
88.	Mizoram	0.28	0.02%			
89.	RGPPPL	0.26	0.01%			
90.	Coastal Gujrat Power	0.24	0.01%			
91.	BALCO 2	0.22	0.01%			
92.	SKS Power	0.20	0.01%			
93.	Tashiding HEP	0.19	0.01%			
94.	Chandigarh	0.15	0.01%			
95.	Maruti Clean Coal	0.14	0.01%			
96.	Nagaland	0.12	0.01%			
97.	Anta_RLNG Fuel	0.10	0.01%			
98.	Lanco Budhil	0.09	0.00%			
99.	NSPCL Bhilai	0.08	0.00%			
100.	Dhariwal	0.05	0.00%			
Total Volume of top 10		1,177.14	63.64%	Total Volume of top 10	1,506.78	81.46%
Total Volume in PXs		1,849.71		Total Volume in PXs	1,849.71	

Annexure-XII**Cross Border Electricity Transactions in Day Ahead Market (DAM) in IEX with Nepal During the month of August, 2021**

S. No	Delivery Date	Traded Volume (MU)
1	01-08-2021	-
2	02-08-2021	-
3	03-08-2021	1.74
4	04-08-2021	-
5	05-08-2021	-
6	06-08-2021	-
7	07-08-2021	-
8	08-08-2021	-
9	09-08-2021	-
10	10-08-2021	-
11	11-08-2021	0.93
12	12-08-2021	-
13	13-08-2021	0.35
14	14-08-2021	0.48
15	15-08-2021	-
16	16-08-2021	-
17	17-08-2021	-
18	18-08-2021	-
19	19-08-2021	-
20	20-08-2021	-
21	21-08-2021	-
22	22-08-2021	-
23	23-08-2021	-
24	24-08-2021	-
25	25-08-2021	-
26	26-08-2021	-
27	27-08-2021	-
28	28-08-2021	-
29	29-08-2021	-
30	30-08-2021	-
31	31-08-2021	-
Total		3.49

-: No transaction happened.

Note: *Cross Border Transactions of Electricity of 3.49 MU (purchase only) happened with Nepal only during August, 2021 in IEX, which is included in DAM Volume of August, 2021 in IEX*

Appendix-I**Analysis for change in trend of Final Scheduled Volume in DAM on 04th Monday and 04th Saturday of August, 2021 (i.e. 23rd August, 2021 and 28th August, 2021 respectively)**

Final Scheduled Volume (MU) and the Daily MCP (Rs/kWh) invariably shows decreasing trend on Sundays as the demand of electricity in the country is less compared to other days of week. However, during the month of August, 2021, it is observed that on fourth Monday (i.e. 23rd August, 2021) and fourth Saturday (i.e. 28th August, 2021), FSV showed decreasing trend in comparison to fourth Sunday (i.e. 22nd August, 2021) and fifth Sunday (i.e. 29th August, 2021) respectively. On analysis, it has been found as under:

- (i) On fourth Monday (23rd August, 2021), although there was increase in purchase on power exchange by some of the States in comparison to fourth Sunday (22nd August, 2021) by **16.68 MU** [i.e. Gujarat (11.35 MU), Uttarakhand (2.59 MU), Andhra Pradesh (1.51 MU), Bihar (0.64 MU) and Assam (0.59 MU), etc.], there was also decrease in purchase on power exchange by some of the States by **27.98 MU** [i.e. Rajasthan (15.12 MU), Punjab (6.35 MU), Himachal Pradesh (2.99 MU), Uttar Pradesh (1.90 MU) and Tamil Nadu (1.62 MU) etc.]. This resulted in an overall decrease in FSV by **11.48 MU** on Monday (23rd August, 2021).
- (ii) On fifth Sunday (29th August, 2021), although there was decrease in purchase on power exchange by some of the States in comparison to fourth Saturday (28th August, 2021) by **26.82 MU** [i.e. Gujarat (17.65 MU), Tamil Nadu (4.96 MU), Bihar (1.79 MU), Odisha (1.45 MU) and J&K (0.98 MU), etc.], there was also increase in purchase on power exchange by some of the States by **39.77 MU** [i.e. Andhra Pradesh (16.67 MU), Rajasthan (11.56 MU), Maharashtra (5.90 MU), Uttar Pradesh (3.38 MU) and Punjab (2.28 MU), etc.]. This resulted in an overall increase in FSV by **16.44 MU** on Sunday (29th August, 2021).

Appendix-II**Special Report for abrupt price rise during the month of August, 2021**

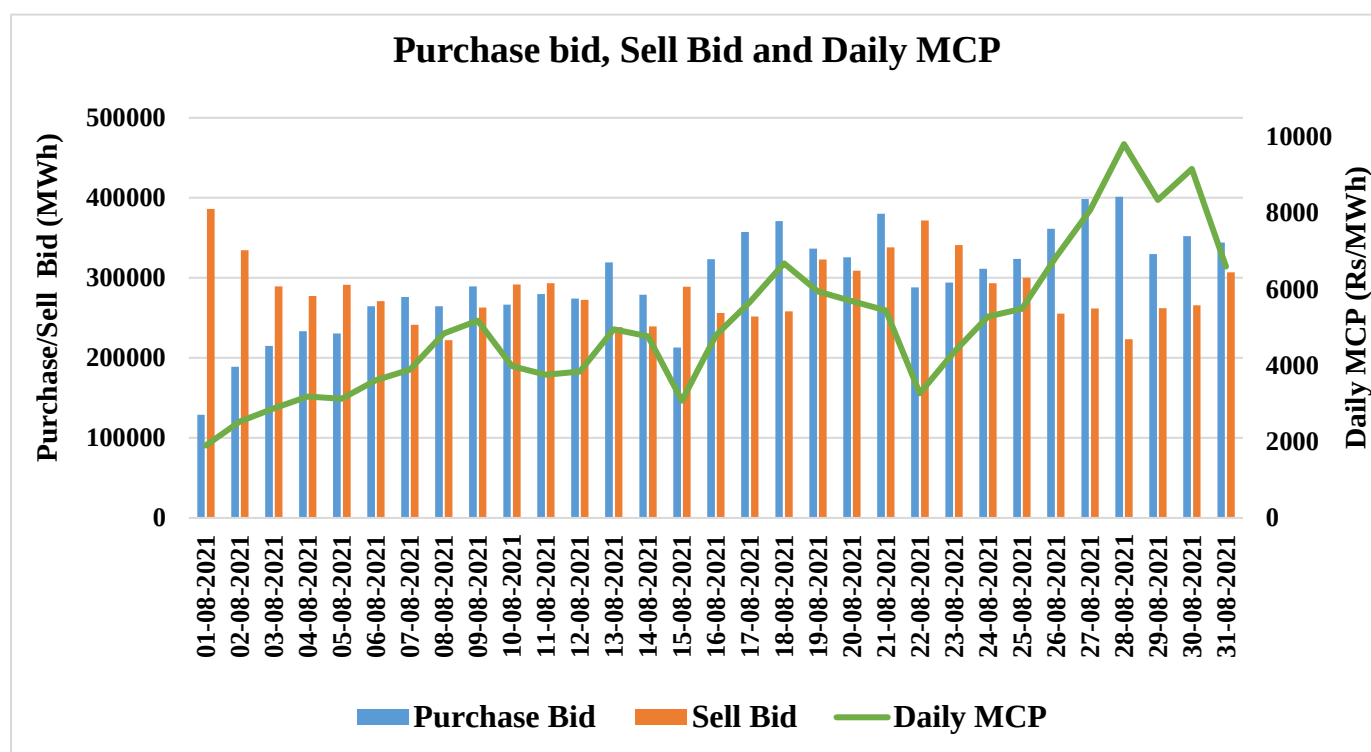
In the month of August, 2021, the maximum MCP discovered in IEX was **Rs 20/kWh** on 29th August, 2021 during the **time block 19:30-19:45 Hrs**. Similarly the MCP discovered on 30th August, 2021 varied from **Rs 19.92/kWh to Rs 19.96/kWh** during the time blocks 19:30 to 21:00 Hrs (Table 8).

Time Blocks	Purchase bid (MWh)	Sell Bid (MWh)	FSV (MWh)	MCP (Rs/kWh)
19:30 – 19:45 Hrs	17156.10	9722.50	9722.5	19.95
19:45 – 20:00 Hrs	17477.30	9803.50	9803.5	19.96
20:00 – 20:15 Hrs	17726.80	9795.60	9795.6	19.93
20:15 – 20:30 Hrs	17264.70	9796.80	9796.8	19.93
20:30 – 20:45 Hrs	16919.70	9799.90	9799.9	19.92
20:45 – 21:00 Hrs	16693.90	9874.80	9874.8	19.93

Table 8

- Variation of Purchase, Sale Bid and Daily MCP in IEX during August, 2021**

The variation in purchase bid, sell bid and daily MCP during the month of August, 2021 is given in **Figure 10:**

**Figure-10**

- Electricity generation variation from Thermal, Hydro, Wind and Solar during August, 2021

The electricity generation from thermal, hydro, wind and solar plants during the month of August, 2021 is given in figure 11:

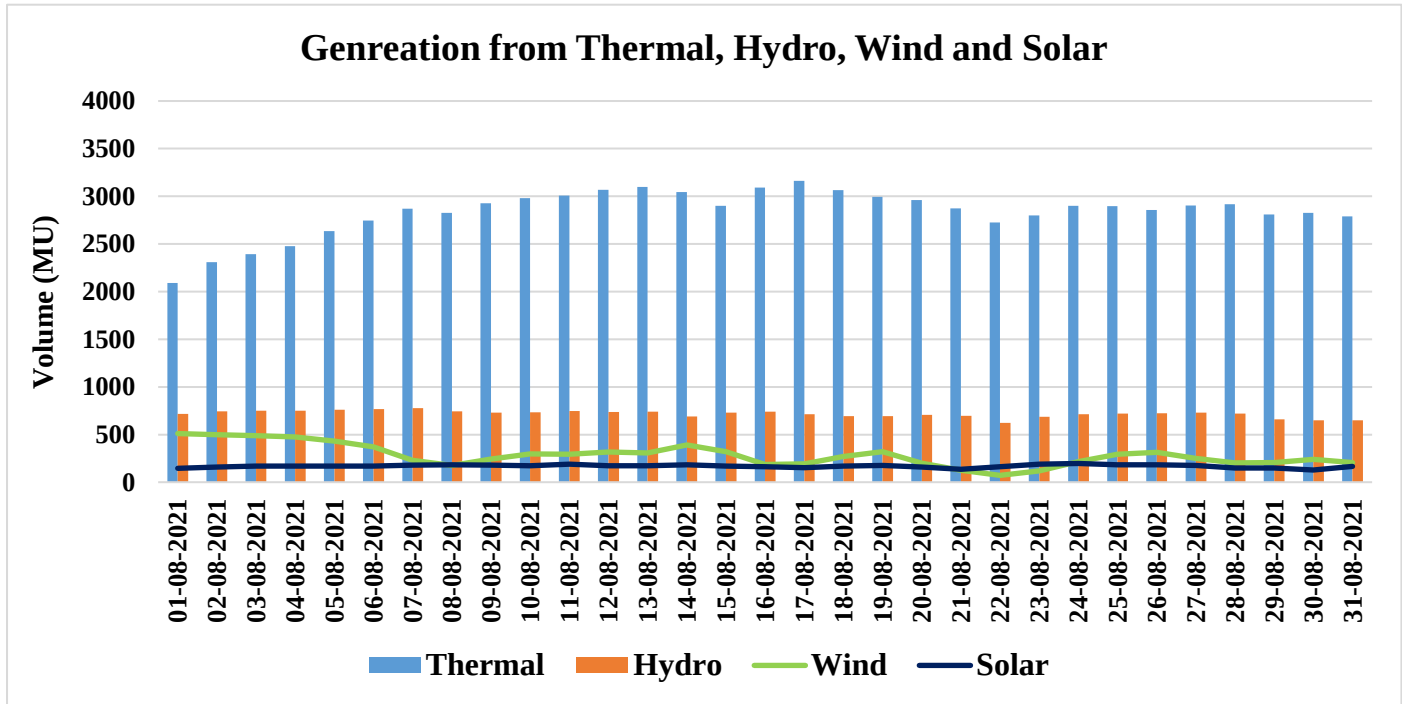


Figure-11

- Maximum Demand met and Daily MCP variation in August, 2021

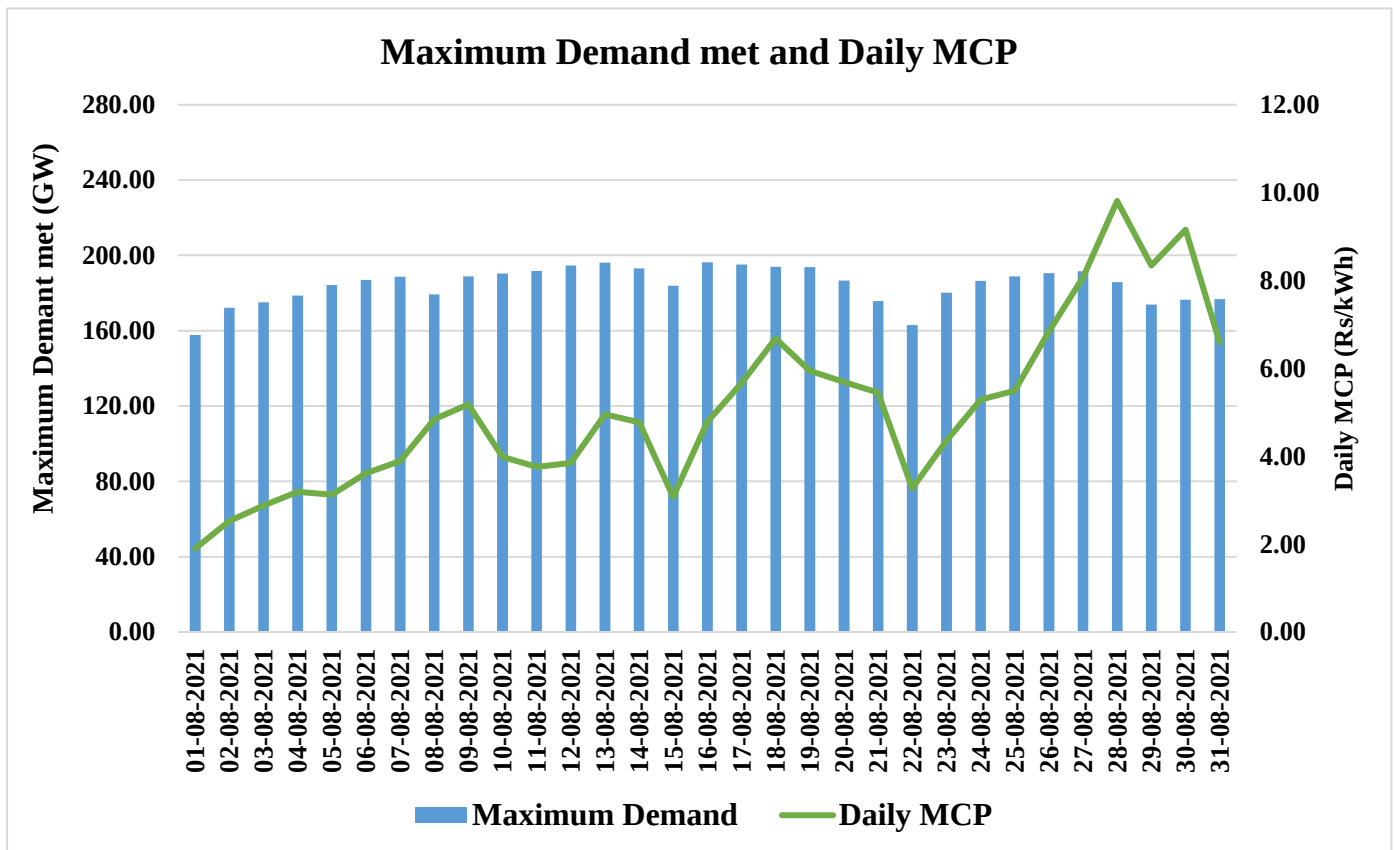


Figure-12

- **Outages observed during August, 2021** The daily outage data for Coal, Lignite and Nuclear plants for planned/ forced maintenance as per CEA report is as follows:

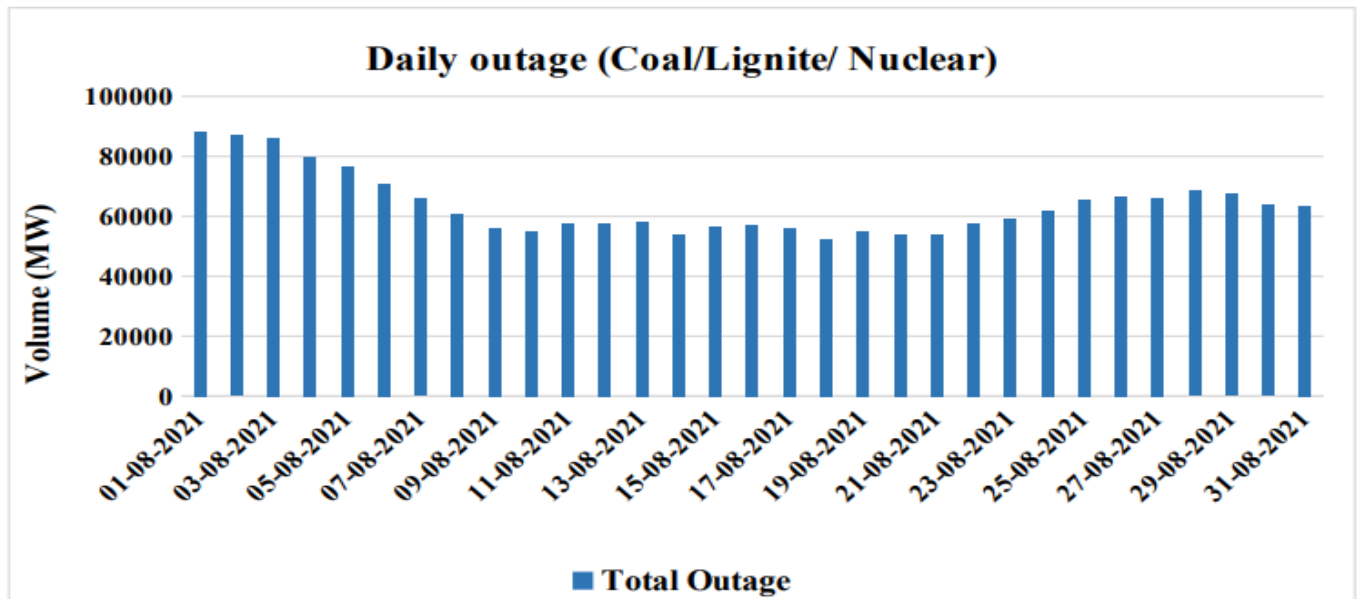


Figure-13

CONCLUSION:

As can be seen from the above mentioned **Table-8**, the purchase bid was more than the sell bid for the respective time blocks. The demand was more and the sell was less, so the buyers, which required power at any cost to meet their consumer demand may have bid higher prices in order to get power from exchange. This might have resulted in high market clearing price.

Also, as informed by IEX, one important reason for increase in MCP to **Rs 20/ kWh** during the time block **19:30-19:45 Hrs on 29th August, 2021** was the aggressive bidding from some of the consumers. There was compulsory buy bid from some of the distribution licensees, which led to discovery of high MCP.

The transacted volume in IEX during the month of August, 2021 (**6,648.76 MU in DAM**) was also higher as compared to volume transacted in IEX in DAM in August, 2020 (**4,484.36 MU**). After the pandemic, the economic and industrial activities have gained pace and this led to the increase in demand for power. On the other hand, the supply-side constraints such as high cost of imported coal and LNG as well as lower wind power generation during the month of August, 2021 had led to the increase in the electricity prices discovered on the exchange.

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, 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 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 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. **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.

- 11. 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.
- 12. 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.