



सत्यमेव जयते

अक्टूबर, 2021 मासिक मार्केट मॉनिटरिंग रिपोर्ट

Monthly Market Monitoring Report October, 2021



भारत सरकार/ Government of India

विद्युत मंत्रालय/ Ministry of Power

केन्द्रीय विद्युत प्राधिकरण/ Central Electricity Authority

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दिनांक: 27.01.2022

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MARKET MONITORING REPORT
FOR THE MONTH OF OCTOBER, 2021

SUMMARY

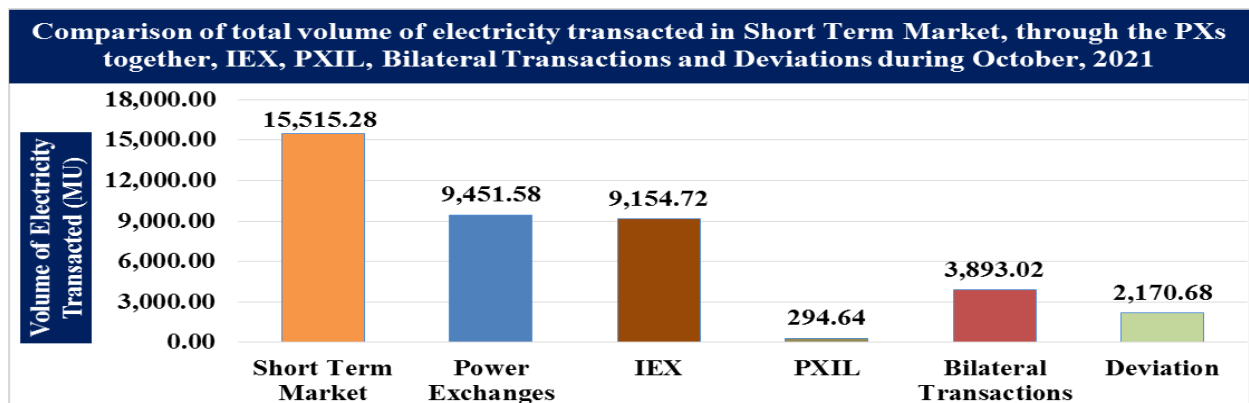
SUMMARY FOR MONTH: OCTOBER, 2021

SUMMARY OF ELECTRICITY TRANSACTIONS ON POWER EXCHANGES IN INDIA

- A total volume of **9,451.58 MU** electricity was transacted in both the power exchanges i.e. IEX & PXIL, during the month of October, 2021. This volume of electricity is on delivery date basis and includes transactions through DAM, GDAM, RTM, TAM and GTAM market segments.

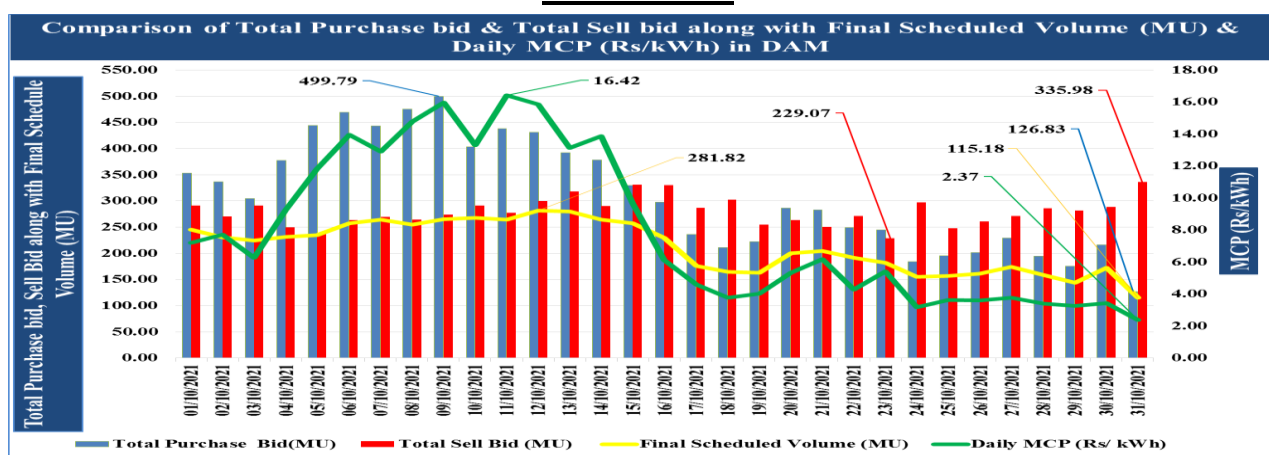
Segment	Transactions happened in PXs (IEX and PXIL combined)			
	FSV (MU)	Weighted Average MCP (Rs/kWh)	Congestion	Real Time Curtailment
DAM	6,568.68	8.01	-	-
GDAM	19.41	5.36	-	-
RTM	1,999.17	6.91	1.14	-
TAM	459.34	4.90	1.57	-
GTAM	404.98	6.77	-	-
Total in PXs	9,451.58	7.57	2.71	-

- Under the Bilateral trade a total of **3,893.02 MU** of electricity was transacted and **2,170.68 MU** was transferred as deviation. Thus a total of **15,515.28 MU** of electricity was transacted as short term trade. In the month of October, 2021 a total of **112,797 MU** of electricity was supplied in the country, thus the share of short term market in the total volume of electricity traded in October was **13.76 %**.

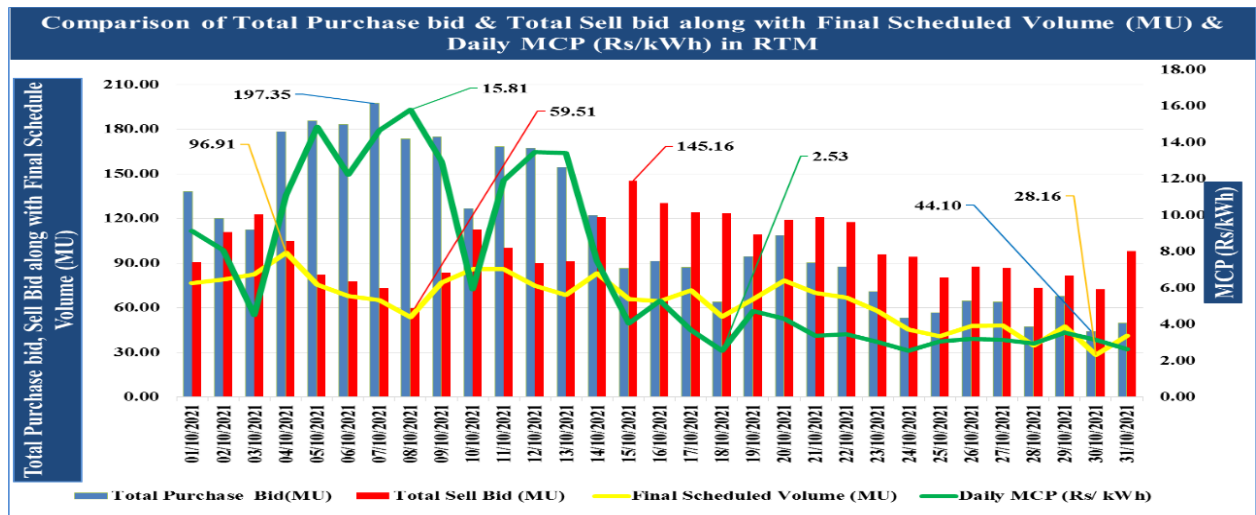


- The total volume of congestion that happened during the month of October, 2021 was **2.71 MU** which is only 0.029 % of the total volume of electricity transacted in the power exchanges and 0.0024 % of total energy supplied during the month of October, 2021. **No** real time curtailment was reported in the month of October, 2021.
- The variation of Purchase and Sell bids, Final Scheduled Volume and Daily MCP in DAM and RTM during the month of October, 2021 are shown in following figures:

DAM Volume

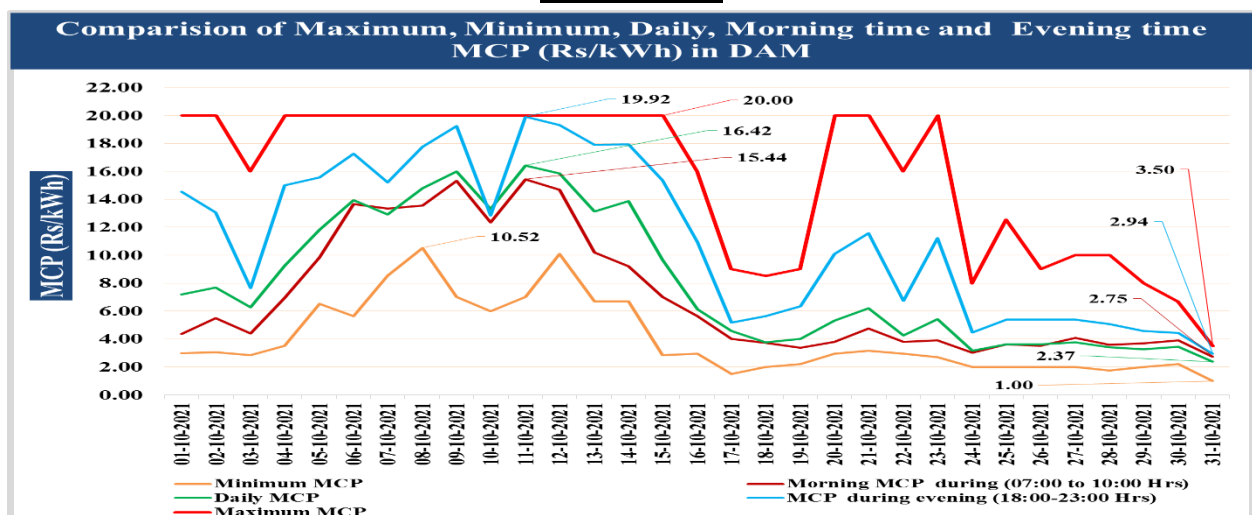


RTM Volume

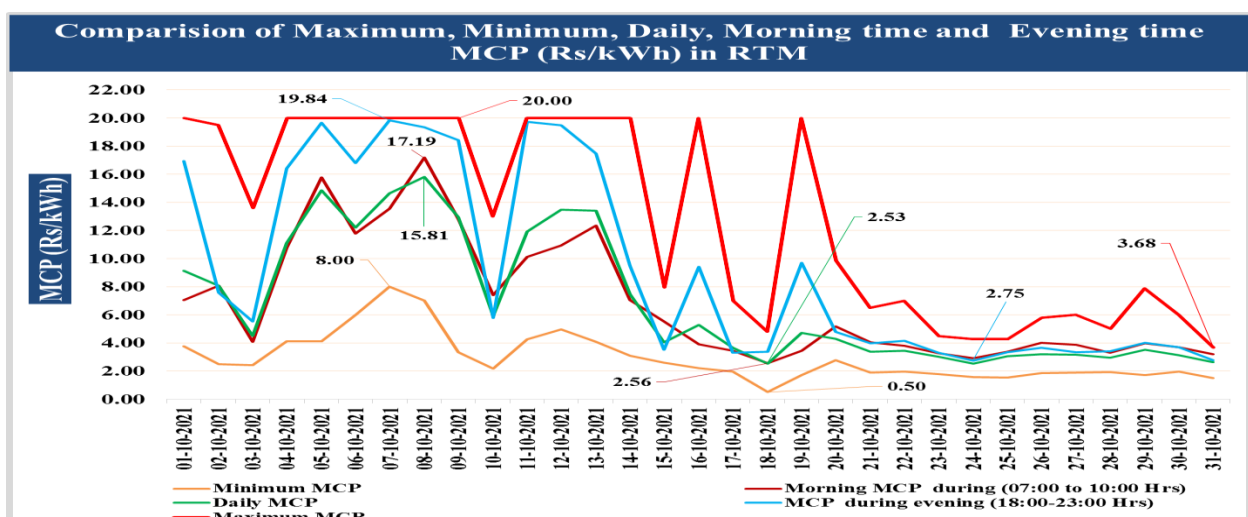


- The variation of Maximum, Minimum, Daily, Morning and Evening time MCPs in DAM and RTM during the month of October, 2021 are shown in following figures:

DAM Prices



RTM Prices



OVERVIEW OF REPORT

REPORT FOR MONTH: OCTOBER, 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 October, 2021 was **6,568.68 MU**. The total energy supplied in the country during the month of October, 2021 was 1,12,797 MU. Thus, the volume of electricity transacted on both the power exchanges in DAM during October, 2021 was 5.82 % of the total energy supplied in the country. The total volume of electricity transacted in DAM on both the power exchanges during September, 2021 was **6,419.54 MU** which was 5.71% of the total energy supplied [1,12,435 MU] in the country during September, 2021. Similarly, the total volume of electricity transacted in DAM on both the power exchanges during October, 2020 was **5,550.10 MU** which was 5.08 % of the total energy supplied [1,09,174 MU] in the country during October, 2020.
- 1.2. The volume of electricity transacted on IEX and PXIL during October, 2021 were **6,568.31 MU and 0.37 MU**, respectively, which means that the total volume transacted on IEX was **99.99 %** of the total volume on power exchanges. The volume of electricity transacted on IEX and PXIL during September, 2021 were **6,418.27 MU and 1.27 MU**, respectively, which means that the total volume transacted on IEX was **99.98 %** of the total volume on power exchanges. Also, the volume of electricity transacted on IEX and PXIL during October, 2020, were **5,500.53 MU and 49.57 MU** respectively.
- 1.3. There was **no** Cross Border Transactions of Electricity happened in DAM in IEX during October, 2021 and September, 2021, respectively.
- 1.4. The Average Market Clearing Price (MCP) on IEX during the month of October, 2021 was **Rs 8.01/kWh**, which shows an increase of **82.04%** and an increase **192.34%** when compared with average MCP's for the month of September, 2021 and October, 2020, which were **Rs 4.40/kWh and Rs 2.74/kWh**, respectively. On PXIL, the average MCP during the month of October, 2021 was **Rs 7.17/kWh**, which shows an increase of **9.97%** and an increase of **151.58 %** when compared with average MCP's for the month of September, 2021 and October, 2020, which were **Rs 6.52/kWh and Rs 2.85/kWh** respectively.

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

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

(a) October, 2021 vis- a -vis September, 2021

Daily MCP (Rs/kWh)	IEX			PXIL		
	October, 2021	September, 2021	% Change	October, 2021	September, 2021	% Change

Minimum	2.37	2.35	0.85	4.59	5.00	-8.20
Maximum	16.42	7.04	133.24	9.99	8.09	23.49
Average	8.01	4.40	82.05	7.17	6.52	9.97

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

Daily MCP (Rs/kWh)	IEX			PXIL		
	October, 2021	October, 2020	% Change	October, 2021	October, 2020	% Change
Minimum	2.37	2.40	-1.25	4.59	2.51	82.87
Maximum	16.42	3.12	426.28	9.99	3.44	190.41
Average	8.01	2.74	192.34	7.17	2.85	151.58

Table: 1B

2.2. The maximum Area Clearing Price (ACP) of **Rs 20.00/kWh** in IEX was observed in all 13 regions on 1-2, 4-15, 20-21 and 23rd October, 2021 [time block wise details given at **Annexure XIII**]. As there was no congestion in transmission system, the MCP for the time-blocks on above mentioned dates was also **Rs 20.00/kWh**. Whereas, in PXIL, the maximum ACP of **Rs 19.50/kWh** was observed in all 13 regions during the 5 consecutive time blocks **18.45-19:00 to 19:45-20:00 Hrs** on 2nd October, 2021. As there was no congestion in transmission system, the MCP for above time blocks was also **Rs 19.50/kWh**. However, the Daily MCP in PXIL on 2nd October, 2021 was **Rs 2.86/kWh**.

2.3. The minimum ACP of **Rs 1.00/kWh** in IEX was observed in all 13 regions during the time block **13:15-13:30 Hrs** on 31st October, 2021. As there was no congestion in transmission system, the MCP for this time-block was also **Rs 1.00/kWh** on 31st October, 2021. However, the Daily MCP in IEX on pan India basis on 31st October, 2021 was **Rs 2.37/kWh**. Whereas, in PXIL, the minimum ACP of **Rs 3.65/kWh** was observed in all 13 regions during the 2 consecutive time blocks **14:30-14:45 Hrs to 14:45-15:00 Hrs** on 2nd October, 2021. As no congestion was there in transmission system, the MCP for the above time blocks were also **Rs 3.65/kWh**. Moreover, the Daily MCP in PXIL on 02nd October, 2021 was **Rs 2.86/kWh** respectively.

2.4. A comparison of the Minimum and Maximum Area Clearing Price (ACP) during the months of October, 2021 with that of September, 2021 and October, 2020 is given in Table-2A&2B:

(a) October, 2021 vis- a -vis September, 2021

ACP (Rs/kWh)	IEX			PXIL		
	October, 2021	September, 2021	% Change	October, 2021	September, 2021	% Change
Minimum	1.00	1.50	-33.33	3.65	3.33	9.61
Maximum	20.00	20.00	0.00	19.50	15.90	22.64

Table: 2A

(b) October, 2021 vis- a- vis October, 2020

ACP (Rs/kWh)	IEX			PXIL		
	October, 2021	October, 2020	% Change	October, 2021	October, 2020	% Change
Minimum	1.00	1.60	-37.50	3.65	2.00	82.50
Maximum	20.00	6.00	233.33	19.50	5.47	256.49

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 October, 2021 with that of September, 2021 and October, 2020 is given in Table-3A & 3B:

(a) October, 2021 vis- a- vis September, 2021

Final Scheduled Volume (MU)	IEX			PXIL		
	October, 2021	September, 2021	% Change	October, 2021	September, 2021	% Change
Minimum	115.18	154.11	-25.26	0.03	0.03	0.00
Maximum	281.82	294.18	-4.20	0.16	0.38	-57.89
Average	211.88	213.94	-0.96	0.09	0.21	-57.14

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

Final Scheduled Volume (MU)	IEX			PXIL		
	October, 2021	October, 2020	% Change	October, 2021	October, 2020	% Change
Minimum	115.18	123.04	-6.39	0.03	0.58	-94.83
Maximum	281.82	208.48	35.18	0.16	2.69	-94.05
Average	211.88	177.44	19.41	0.09	1.60	-94.38

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 October, 2021 was **521.89 MU**, out of which, **298.11 MU** (57.12 %) was transacted on IEX and **223.78 MU** (42.88 %) 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 September, 2021 was **407.64 MU**, out of which, **198.18 MU** (48.62 %) was transacted on IEX and **209.46 MU** (51.38 %) was transacted on PXIL.
- 3.3.** Similarly, total volume of electricity transacted during October, 2020 in Term Ahead Market on trade date basis in both the power exchanges was **1,250.25 MU**, out of which, **276.80 MU** (22.14 %) was transacted on IEX and **973.45 MU** (77.86%) was transacted on PXIL.
- 3.4.** With respect to the total energy supplied during month of October, 2021 in the country, the volume of electricity traded on power exchanges in TAM on trade date basis represents **0.46 %** of the total energy supplied. The same was **0.36%** in September, 2021 and **1.15 %** in October, 2020.

3.5. In the month of October, 2021, there was no transmission congestion in IEX, whereas in PXIL, there was a transmission congestion of **1.57 MU** in Day Ahead Contingency Contract in TAM during the month of October, 2021.

3.6. The comparison of total volume of electricity transacted and Average MCP on both the power exchanges in Term Ahead Market (TAM) during October, 2021 with September, 2021 and October, 2020 is given in Table- 4A, 4B & 4C:

(a) October, 2021 vis- a- vis September, 2021 (on trade Date Basis)

Contract Type	IEX			PXIL		
	October, 2021	September, 2021	% Change	October, 2021	September, 2021	% Change
Intra Day (MU)	1.28	0.42	204.7	4.17	3.40	22.65
Day Ahead Contingency(MU)	156.67	68.64	128.25	219.61	143.90	52.61
Daily/ AnyDay (MU)	140.16	129.12	8.55	-	62.16	NA
Weekly (MU)	-	-	NA	-	-	NA

- : No Transaction happened

NA: Not Applicable

Table: 4A

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

Contract Type	IEX			PXIL		
	October, 2021	October, 2020	% Change	October, 2021	October, 2020	% Change
Intra Day (MU)	1.28	0.89	43.82	4.17	19.82	-78.96
Day Ahead Contingency(MU)	156.67	16.71	837.58	219.61	-	NA
Daily/ AnyDay (MU)	140.16	91.20	53.68	-	953.63	NA
Weekly (MU)	-	168.00	NA	-	-	NA

- : No Transaction happened

NA: Not Applicable

Table: 4B

(c) Average MCP, October, 2021 vis- a- vis October, 2020 and September, 2021 (on trade Date Basis)

Exchange	Period	Average MCP (Rs/kWh)			
		Intra Day	Day Ahead Contingency	Daily or Any Day	Weekly
IEX	October, 2021	6.25	6.86	5.49	-
	September, 2021	6.61	4.63	3.65	-
	%Change (Month over Month)	-5.45	48.16	50.41	NA
	October, 2020	3.64	2.74	2.58	2.56
	%Change (Year over Year)	71.70	150.36	112.79	NA
PXIL	October, 2021	11.38	8.12	-	-
	September, 2021	6.30	4.60	4.18	-
	%Change (Month over Month)	80.64	76.52	NA	NA
	October, 2020	3.33	-	2.81	-
	%Change (Year over Year)	241.74	NA	NA	NA

-: No transaction happened

NA: Not Applicable

Table: 4C

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 October, 2021 was **459.34 MU**, out of which, **224.78 MU** (48.94 %) was transacted on IEX and **234.56 MU** (51.06 %) 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 September, 2021 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.
- 3.9. Similarly, total volume of electricity transacted during October, 2020 in Term Ahead Market on delivery date basis in both the power exchanges was **1,010.01 MU**, out of which, **219.16 MU** (21.70 %) was transacted on IEX and **790.85 MU** (78.30 %) was transacted on PXIL.
- 3.10. With respect to the total energy supplied during the month of October, 2021 in the country, the volume of electricity traded on the power exchanges in TAM on delivery date basis represents **0.41 %** of the total energy supplied. The same was **0.40 %** in September, 2021 and **0.93 %** in October, 2020.
- 3.11. In the month of October, 2021, there was **no** real time curtailment in IEX and PXIL, respectively.
- 3.12. **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 October, 2021 with September, 2021 and October, 2020 is given in Table – 4D, 4E & 4 F:**

(a) October, 2021 vis- a- vis September, 2021 (on Delivery Date Basis)

Contract Type	IEX			PXIL		
	October, 2021	September, 2021	% Change	October, 2021	September, 2021	% Change
Intra Day (MU)	1.28	0.42	204.76	4.17	3.40	22.65
Day Ahead Contingency(MU)	153.90	68.36	125.13	230.39	143.61	60.43
Daily/Any Day (MU)	69.60	124.09	-43.91	-	104.16	NA
Weekly (MU)	-	-	NA	-	-	NA

- : No transaction happened

NA: Not Applicable

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

Contract Type	IEX			PXIL		
	October, 2021	October, 2020	% Change	October, 2021	October, 2020	% Change
Intra Day (MU)	1.28	0.89	43.82	4.17	20.39	-79.55
Day Ahead Contingency MU)	153.90	16.87	812.27	230.39	-	NA
Daily/ Any Day (MU)	69.60	69.40	0.29	-	770.46	NA
Weekly (MU)	-	132.00	NA	-	-	NA

-: No transaction happened

NA: Not Applicable

Table: 4E

(c) Average MCP, October, 2021 vis- a- vis October, 2020 and September, 2021 (on Delivery Date Basis)

Exchange	Period	Average MCP (Rs/kWh)			
		Intra Day	Day Ahead Contingency	Daily or Any Day	Weekly
IEX	October, 2021	6.25	7.01	7.58	-
	September, 2021	8.72	4.55	3.80	-
	% Change (Month over Month)	-28.33	54.07	99.47	NA
	October, 2020	3.66	2.74	2.58	2.55
	% Change (Year over Year)	70.77	155.84	193.80	NA
PXIL	October, 2021	11.38	8.24	-	-
	September, 2021	6.30	4.53	4.03	
	% Change (Month over Month)	80.64	81.90	NA	NA
	October, 2020	3.29	-	2.58	-
	% Change (Year over Year)	245.90	NA	NA	NA

-: No transaction happened

NA: Not Applicable

Table: 4F

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 total volume of electricity transacted on both the power exchanges in Real Time Market in October, 2021 was **1,999.17 MU**, out of which, **1,999.17 MU** (100 %) was transacted in IEX and no transaction happened in PXIL. The Final Scheduled Volume (FSV), Daily Market Clearing Prices (MCP) and Area Clearing Prices (ACP) in Real Time Market during the month of October, 2021 as compared with September, 2021 and October, 2020 are as given in table 5A, 5B & 5C:

(i) Final Scheduled Volume:

Exchange	Period	Final Scheduled Volume (MU)			
		Total	Minimum	Maximum	Average
IEX	October, 2021	1999.17	28.16	96.91	64.49
	September, 2021	1842.59	40.58	88.03	61.42
	Change % (Month over Month)	8.50	-30.61	10.09	5.00
	October, 2020	814.48	16.71	44.54	26.27
	Change % (Year over Year)	145.45	68.52	117.58	145.49
PXIL	October, 2021	-	-	-	-
	September, 2021	-	-	-	-
	Change % (Month over Month)	NA	NA	NA	NA
	October, 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	October, 2021	2.53	15.81	6.91
	September, 2021	1.66	6.89	3.84
	Change % (Month over Month)	52.41	129.46	79.95
	October, 2020	1.96	3.39	2.69
	Change % (Year over Year)	29.08	366.37	156.88
PXIL	October, 2021	-	-	-
	September, 2021	-	-	-
	Change % (Month over Month)	NA	NA	NA
	October, 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	October, 2021	0.50	20.00
	September, 2021	0.50	20.00
	Change % (Month over Month)	0.00	0.00
	October, 2020	0.60	11.56
	Change % (Year over Year)	-16.67	73.01
PXIL	October, 2021	-	-
	September, 2021	-	-
	Change % (Month over Month)	NA	NA
	October, 2020	-	-
	Change % (Year over Year)	NA	NA

-: 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 both the power exchanges in GTAM on trade date basis and delivery date basis were **403.10 MU** and **404.98 MU**, respectively. The total volume of electricity transacted in Solar Energy Segment in GTAM in Day Ahead Contingency, Intraday, Daily/ Anyday and Weekly contracts during October, 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 October, 2021 and its comparison with September, 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		October, 2021	227.84	2.21	18.77	7.35

	Day Ahead Contingency	September, 2021	229.71	1.54	15.42	7.66
		%Change (Month over Month)	-0.81	43.51	21.73	-4.05
		October, 2020	173.44	0.22	9.81	5.59
		%Change (Year over Year)	31.37	904.55	91.34	31.48
	Intraday	October, 2021	3.26	0.04	1.68	0.14
		September, 2021	3.37	0.03	0.65	0.11
		%Change (Month over Month)	-3.26	33.33	158.46	27.27
		October, 2020	5.09	0.02	1.58	0.46
		%Change (Year over Year)	-35.95	100.00	6.33	-69.57
IEX	Daily/ Anyday	October, 2021	-	-	-	-
		September, 2021	36.12	36.12	36.12	36.12
		%Change (Month over Month)	NA	NA	NA	NA
		October, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Weekly	October, 2021	-	-	-	-
		September, 2021	5.60	2.80	2.80	2.80
		%Change (Month over Month)	NA	NA	NA	NA
		October, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
PXIL	Day Ahead Contingency	October, 2021	25.74	0.44	3.30	1.98
		September, 2021	5.53	0.84	1.01	0.92
		%Change (Month over Month)	365.46	-47.62	226.73	115.22
	Intraday	October, 2021	-	-	-	-
		September, 2021	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
	Daily/ Anyday	October, 2021	0.04	0.04	0.04	0.04
		September, 2021	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
	Weekly	October, 2021	-	-	-	-
		September, 2021	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA

-: 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	October, 2021	3.16	10.76	5.23
		September, 2021	3.25	4.84	3.92
		%Change	-2.77	122.31	33.42

		(Month over Month)			
		October, 2020	3.34	3.60	3.45
		%Change (Year over Year)	-5.39	198.89	51.59
	Intraday	October, 2021	3.00	9.16	3.67
		September, 2021	3.00	4.02	3.51
		%Change (Month over Month)	0.00	127.86	4.56
		October, 2020	3.30	4.00	3.58
		%Change (Year over Year)	-9.09	129.00	2.51
	Daily/Anyday	October, 2021	-	-	-
		September, 2021	4.60	4.60	4.60
		%Change (Month over Month)	NA	NA	NA
		October, 2020	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Weekly	October, 2021	-	-	-
		September, 2021	4.10	4.20	4.15
		%Change (Month over Month)	NA	NA	NA
		October, 2020	-	-	-
		%Change (Year over Year)	NA	NA	NA
PXIL	Day Ahead Contingency	October, 2021	2.42	4.03	3.40
		September, 2021	3.40	5.53	3.99
		%Change (Month over Month)	-28.82	-27.12	-14.79
	Intraday	October, 2021	-		
		September, 2021	-		
		%Change (Month over Month)	NA		
	Daily/ Anyday	October, 2021	3.50	3.50	3.50
		September, 2021	-	-	-
		%Change (Month over Month)	NA	NA	NA
	Weekly	October, 2021	-		
		September, 2021	-		
		%Change (Month over Month)	NA		

-: 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 October, 2021 and its comparison with September, 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	October, 2021	222.37	2.21	18.77	7.17
		September, 2021	230.74	1.54	15.42	7.69
		%Change (Month over Month)	-3.63	43.51	21.73	-6.76
		October, 2020	178.22	0.22	10.08	5.75
		%Change (Year over Year)	24.77	904.55	86.21	24.70
	Intraday	October, 2021	3.26	0.04	1.68	0.14
		September, 2021	3.37	0.03	0.65	0.11
		%Change (Month over Month)	-3.26	33.33	158.46	27.27
		October, 2020	5.09	0.02	1.58	0.46
		%Change (Year over Year)	-35.95	100.00	6.33	-69.57
	Daily/ Anyday	October, 2021	-	-	-	-
		September, 2021	36.12	2.52	4.08	3.61
		%Change (Month over Month)	NA	NA	NA	NA
		October, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Weekly	October, 2021	-	-	-	-
		September, 2021	5.60	0.40	0.40	0.40
		%Change (Month over Month)	NA	NA	NA	NA
		October, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
PXIL	Day Ahead Contingency	October, 2021	25.74	0.44	3.30	1.98
		September, 2021	5.53	0.84	1.01	0.92
		%Change (Month over Month)	365.46	-47.62	226.73	115.22
	Intraday	October, 2021	-			
		September, 2021	-			
	Daily/Anyday	October, 2021	-			
		September, 2021	-			
	Weekly	October, 2021	-			
		September, 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	October, 2021	3.16	10.76	5.26
		September, 2021	3.25	4.84	3.91
		%Change (Month over Month)	-2.77	122.31	34.53
		October, 2020	3.34	3.60	3.45
		%Change (Year over Year)	-5.39	198.89	52.46
	Intraday	October, 2021	3.00	9.16	3.67
		September, 2021	3.00	4.02	3.51

		%Change (Month over Month)	0.00	127.86	4.56
		October, 2020	3.30	4.00	3.58
		%Change (Year over Year)	-9.09	129.00	2.51
	Daily/Anyday	October, 2021	-	-	-
		September, 2021	4.60	4.60	4.60
		%Change (Month over Month)	NA	NA	NA
		October, 2020	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Weekly	October, 2021	-	-	-
		September, 2021	4.10	4.20	4.15
		%Change (Month over Month)	NA	NA	NA
		October, 2020	-	-	-
		%Change (Year over Year)	NA	NA	NA
PXIL	Day Ahead Contingency	October, 2021	2.42	4.03	3.40
		September, 2021	3.40	5.53	3.99
		%Change (Month over Month)	-28.82	-27.12	-14.79
	Intraday	October, 2021	-		
		September, 2021	-		
	Daily/Anyday	October, 2021	-		
		September, 2021	-		
	Weekly	October, 2021	-		
		September, 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 October, 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 October, 2021 on trade date basis and its comparison with September, 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	October, 2021	113.18	0.30	14.04	3.90
		September, 2021	205.93	0.24	12.87	6.86
		%Change (Month over Month)	-45.04	25.00	9.09	-43.15
		October, 2020	29.87	0.06	3.05	0.96
		%Change (Year over Year)	278.91	400.00	360.33	306.25
		October, 2021	1.42	0.30	1.12	0.71

	Intraday	September, 2021	2.89	0.24	1.20	0.72
		%Change (Month over Month)	-50.87	25.00	-6.67	-1.39
		October, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Daily/ Anyday	October, 2021	2.02	2.02	2.02	2.02
		September, 2021	58.51	0.96	52.25	11.70
		%Change (Month over Month)	-96.55	110.42	-96.13	-82.74
		October, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Weekly	October, 2021	-	-	-	-
		September, 2021	0.84	0.84	0.84	0.84
		%Change (Month over Month)	NA	NA	NA	NA
		October, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
PXIL	Day Ahead Contingency	October, 2021	28.34	0.24	2.77	0.94
		September, 2021	50.34	0.65	2.81	1.74
		%Change (Month over Month)	-43.70	-63.08	-1.42	-45.98
	Intraday	October, 2021	-	-	-	-
		September, 2021	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
	Daily/ Anyday	October, 2021	1.26	1.26	1.26	1.26
		September, 2021	3.70	1.30	2.40	1.85
		%Change (Month over Month)	-65.95	-3.08	-47.50	-31.89
	Weekly	October, 2021	-			
		September, 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	October, 2021	3.64	18.70	7.94
		September, 2021	3.55	6.33	4.68
		%Change (Month over Month)	2.54	195.42	69.66
		October, 2020	3.20	3.78	3.60
		%Change (Year over Year)	13.75	394.71	120.56
	Intraday	October, 2021	14.69	20.00	17.35
		September, 2021	4.53	5.90	5.14
		%Change (Month over Month)	224.28	238.98	237.55
		October, 2020	-	-	-
		%Change (Year over Year)	NA	NA	NA

	Daily/ Anyday	October, 2021	14.00	14.00	14.00
		September, 2021	4.60	5.80	5.09
		%Change (Month over Month)	204.35	141.38	175.05
		October, 2020	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Weekly	October, 2021	-	-	-
		September, 2021	4.70	4.70	4.70
		%Change (Month over Month)	NA	NA	NA
		October, 2020	-	-	-
		%Change (Year over Year)	NA	NA	NA
PXIL	Day Ahead Contingency	October, 2021	3.76	16.42	7.79
		September, 2021	3.79	7.65	4.89
		% Change (Month over Month)	-0.79	114.64	59.30
	Intraday	October, 2021	-	-	-
		September, 2021	-	-	-
		% Change (Month over Month)	NA	NA	NA
	Daily/ Anyday	October, 2021	5.10	5.10	5.10
		September, 2021	4.35	4.50	4.43
		% Change (Month over Month)	17.24	13.33	15.12
	Weekly	October, 2021	-		
		September, 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 October, 2021 and its comparison with September, 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	October, 2021	114.40	0.30	14.04	3.94
		September, 2021	205.28	0.24	12.87	6.84
		%Change (Month over Month)	-44.27	25.00	9.09	-42.40
		October, 2020	30.13	0.06	3.05	0.97
		%Change (Year over Year)	279.69	400.00	360.33	306.19
	Intraday	October, 2021	1.42	0.30	1.12	0.71
		September, 2021	2.89	0.24	1.20	0.72
		%Change (Month over Month)	-50.87	25.00	-6.67	-1.39
		October, 2020	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA

PXIL	Daily/Anyday	October, 2021	2.98	0.10	0.29	0.19
		September, 2021	59.14	0.19	6.31	1.97
		% Change (Month over Month)	-94.96	-47.37	-95.40	-90.36
		October, 2020	-	-	-	-
		% Change (Year over Year)	NA	NA	NA	NA
	Weekly	October, 2021	0.84	0.12	0.12	0.12
		September, 2021	-	-	-	-
		% Change (Month over Month)	NA	NA	NA	NA
		October, 2020	-	-	-	-
		% Change (Year over Year)	NA	NA	NA	NA
	Day Ahead Contingency	October, 2021	30.31	0.24	2.81	1.01
		September, 2021	47.53	0.65	2.78	1.70
		% Change (Month over Month)	-36.23	-63.08	1.08	-40.59
	Intraday	October, 2021	-	-	-	-
		September, 2021	-	-	-	-
		% Change (Month over Month)	NA	NA	NA	NA
	Daily/Anyday	October, 2021	3.66	0.18	0.24	0.22
		September, 2021	1.30	0.14	0.14	0.14
		% Change (Month over Month)	181.54	28.57	71.43	57.14
	Weekly	October, 2021	-			
		September, 2021	-			

-: No transaction happened

NA: Not Applicable

Table-6G

(ii) Daily Market Clearing Price (MCP):

Exchange	Non- Solar Energy Contract	Period	Prices(Rs/kW)		
			Minimum	Maximum	Average
IEX	Day Ahead Contingency	October, 2021	3.70	18.70	8.03
		September, 2021	3.55	6.09	4.64
		% Change (Month over Month)	4.23	207.06	73.06
		October, 2020	3.20	3.78	3.59
		% Change (Year over Year)	15.63	394.71	123.68
	Intraday	October, 2021	14.69	20.00	17.35
		September, 2021	4.80	5.90	5.29
		% Change (Month over Month)	206.04	238.98	227.98
		October, 2020	-	-	-
		% Change (Year over Year)	NA	NA	NA
	Daily/Anyday	October, 2021	4.90	14.00	8.88
		September, 2021	4.70	5.80	5.22
		% Change (Month over Month)	4.26	141.38	70.11
		October, 2020	-	-	-
		% Change	NA	NA	NA

PXIL	Weekly	(Year over Year)			
		October, 2021	4.70	4.70	4.70
		September, 2021	-	-	-
		%Change (Month over Month)	NA	NA	NA
		October, 2020	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Day Ahead Contingency	October, 2021	3.76	16.42	7.91
		September, 2021	3.79	7.55	4.79
		%Change (Month over Month)	-0.79	117.48	65.14
	Intraday	October, 2021	-	-	-
		September, 2021	-	-	-
		%Change (Month over Month)	NA	NA	NA
	Daily/Anyday	October, 2021	4.50	5.10	4.75
		September, 2021	4.35	4.35	4.35
		%Change (Month over Month)	3.45	17.24	9.20
	Weekly	October, 2021	-		
		September, 2021	-		

-: No transaction happened

NA: Not Applicable

Table-6H

6. GREEN DAY AHEAD MARKET (GDAM):

The transaction of electricity in Green Day Ahead Market (GDAM) has been started in IEX from 27th October, 2021 with the approval of the CERC. The total volume of electricity transacted in GDAM was **19.41 MU** in the month of October, 2021. The Final Scheduled Volume (FSV), Daily 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 October, 2021 are given below:

i) Final Scheduled Volume in IEX:

Segment	Period	Final Scheduled Volume (MU)			
		Total	Minimum	Maximum	Average
Solar	October, 2021	17.19	2.39	4.44	3.44
Non Solar	October, 2021	2.22	0.03	1.04	0.44
Hydro	October, 2021	-	-	-	-

-: No transaction happened

NA: Not Applicable

Table-7A

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

Exchange	Period	Prices (Rs/kWh)				
		Daily MCP (Rs/kWh)			ACP (Rs/kWh)	
		Minimum	Maximum	Average	Minimum	Maximum
Solar	October, 2021	4.37	8.35	5.36	3.40	18.70
Non Solar	October, 2021	4.37	8.35	5.36	3.40	18.70
Hydro	October, 2021	NA	NA	NA	NA	NA

-: No transaction happened

NA: Not Applicable

Table-7B

- 6.1.** In the month of October, 2021, there was no transmission congestion in IEX in Green Day Ahead Market, hence one nation one price was observed for all 5 days during which transaction happened (i.e. 27th to 31st October, 2021).
- 6.2.** There was **no** real time curtailment in IEX in Green Day Ahead Market during the month of October, 2021.
- 6.3.** The **top 10 sellers** on the power exchanges in **Green Day Ahead Market (GDAM)** in the month of October, 2021 were **Telangana, Karnataka, Azure Power Forty Three Private Limited, Adani Green Solar Jaisalmer, Uttarakhand, Rajasthan, Himachal Pradesh, Renew Solar Energy (Jharkhand Three) Pvt Ltd (RSEJTPL), Madhya Pradesh and Andhra Pradesh**, which constituted **100 %** of the market volume.
- 6.4.** The **top 10 purchasers** on the power exchanges in **Green Day Ahead Market (GDAM)** in the month of October, 2021 were **Maharashtra, Odisha, Dadra & Nagar Haveli, Delhi, Bihar, Kerala, Assam, Tamil Nadu, West Bengal and Uttar Pradesh**, which constituted **97.75%** of the market volume.

7. BILATRAL TRANSACTIONS:

The total volume of electricity transacted through **Bilateral transactions** in the month of October, 2021 was **3,893.02 MU**. The total buy volume of electricity transacted in bilateral market through direct transactions and traders in the month of October, 2021 were **1,459.17 MU** and **2,433.85 MU** respectively. The details of Bilateral transactions of Electricity happened during October, 2021 have been shown in Table Below:

October, 2021	Direct	Traders	Total Bilateral Transaction (MU)
Total	1,459.17	2,433.85	3,893.02
Minimum	0.61	0.84	-
Maximum	319.36	493.95	-

Table -8A

The region-wise maximum/ minimum volume of electricity transaction happened bilaterally during October, 2021 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	182.18	666.30	647.90	1037.32	499.31	657.41	129.79	49.89	0.00	22.92
Minimum	1.01	6.44	91.41	0.84	9.01	37.33	0.61	15.23	0.00	22.92
Maximum	126.95	375.60	215.09	493.95	319.36	169.72	113.70	18.66	0.00	22.92

Table -8B

- 7.1.** The **top 5 buyers** on bilateral transaction through direct transactions in the month of October, 2021 were **Haryana, Maharashtra, Madhya Pradesh, Jharkhand and Talangana**, which constituted **62.93%** of the market volume. Whereas **top 5 buyers** on bilateral transaction through traders in the month of October, 2021 were **Maharashtra, Gujarat, Odisha,**

Haryana and West Bengal, which constituted **66.13%** of the market volume. [Annexure III]

7.2. The **top 5 sellers** on bilateral transaction through direct transactions in the month of October, 2021 were **DVC, Adhunik Power, SKS Raigarh, RKM_Power and J&K**, which constituted **47.53%** of the market volume. Whereas **top 5 sellers** on bilateral transaction through traders in the month of October, 2021 were **Raipur Energen, Karnataka, JITPL, JPNIGRIE_JNSTPP and JPL**, which constituted **41.58%** of the market volume. [Annexure III]

7.3. Deviation Volume - The volume of Deviation observed in the month of October, 2021 in import and export were **2,076.40 MU** and **2,264.95 MU** respectively. The total volume of Deviation observed in the month of October, 2021 can be taken as **2,170.68 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 October, 2021 is shown in **Figure 1:**

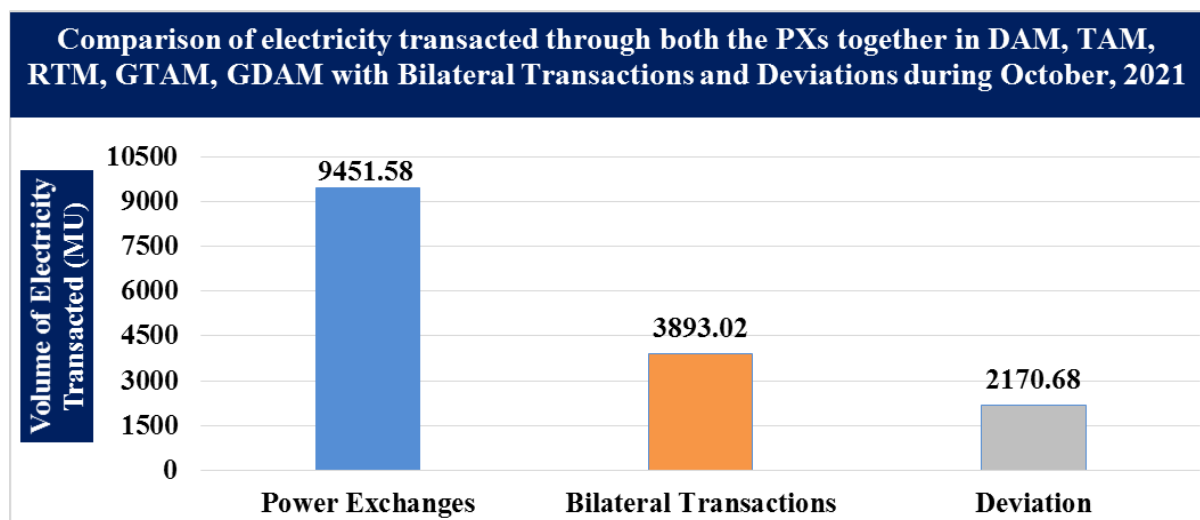


Figure -1

8. ANALYSIS OF MOVEMENT OF PRICES OBSERVED IN DAM DURING OCTOBER, 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 October, 2021 month. The observations made are as under:

- 8.1.** 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.
- 8.2.** 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 variable was the **total purchase 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 **1.72**, which signifies that there is high multi-collinearity among the predictor variables/ independent variables used in regression analysis.

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

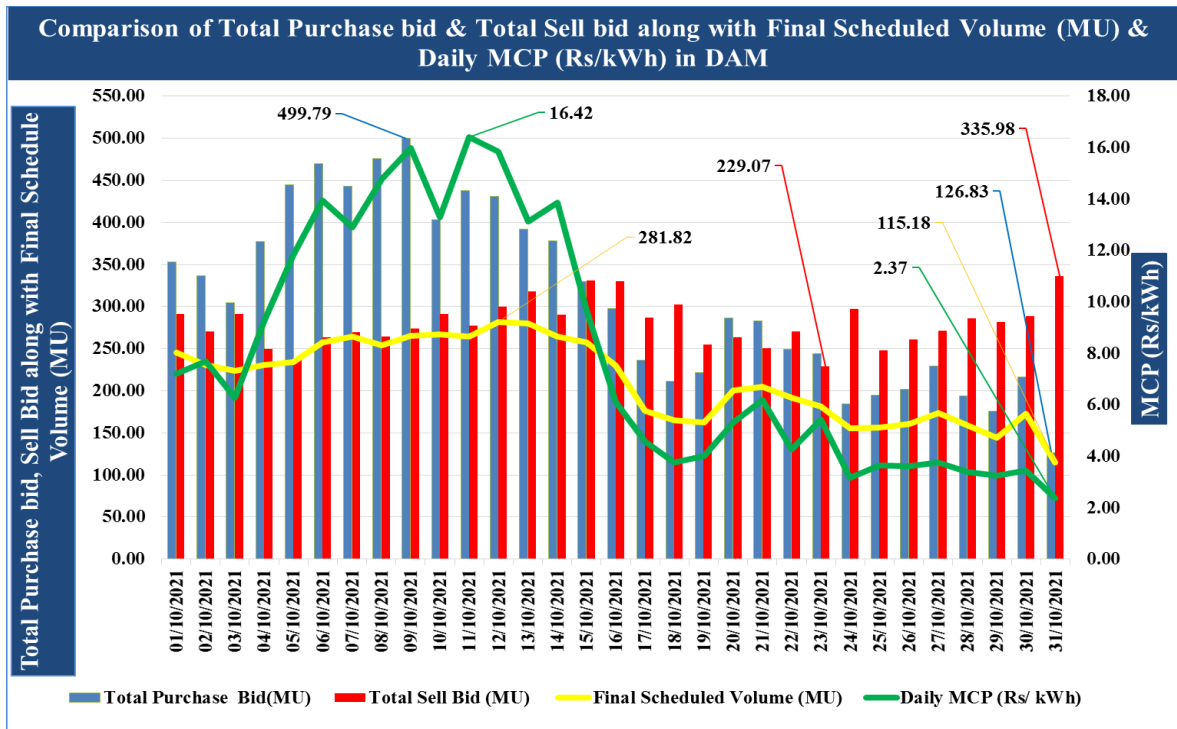


Figure -2

8.4. Invariably, the Final Scheduled Volume (MU) and the Daily 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 October, 2021, it is observed that on third Monday (18th October, 2021), FSV showed decreasing trend in comparison to third Sunday (17th October, 2021). The detailed analysis on this is given at **Appendix-I**.

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

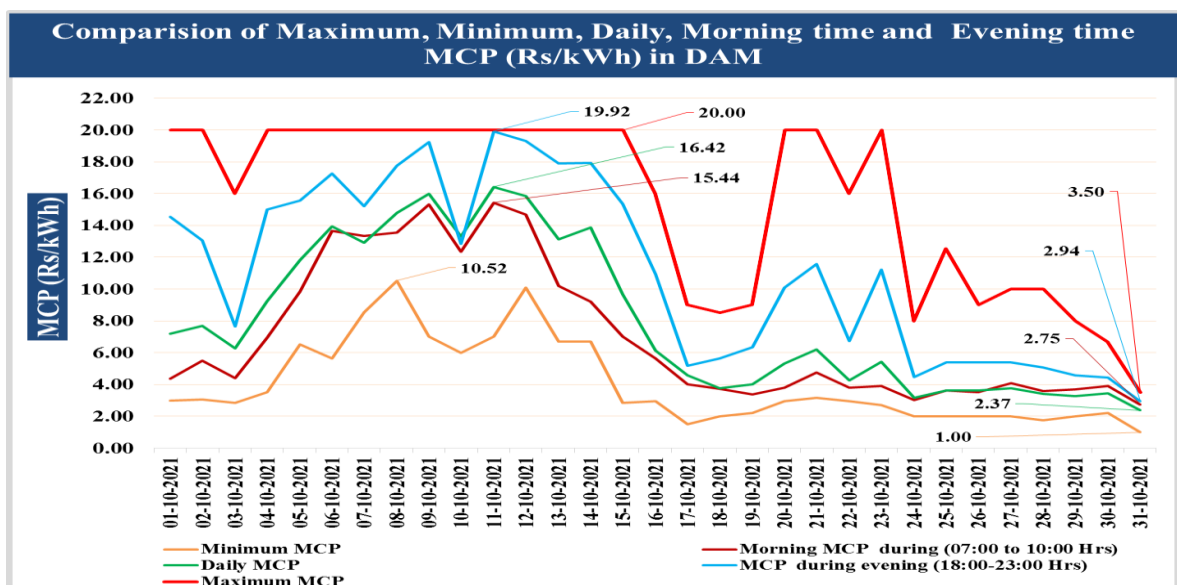


Figure -3

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

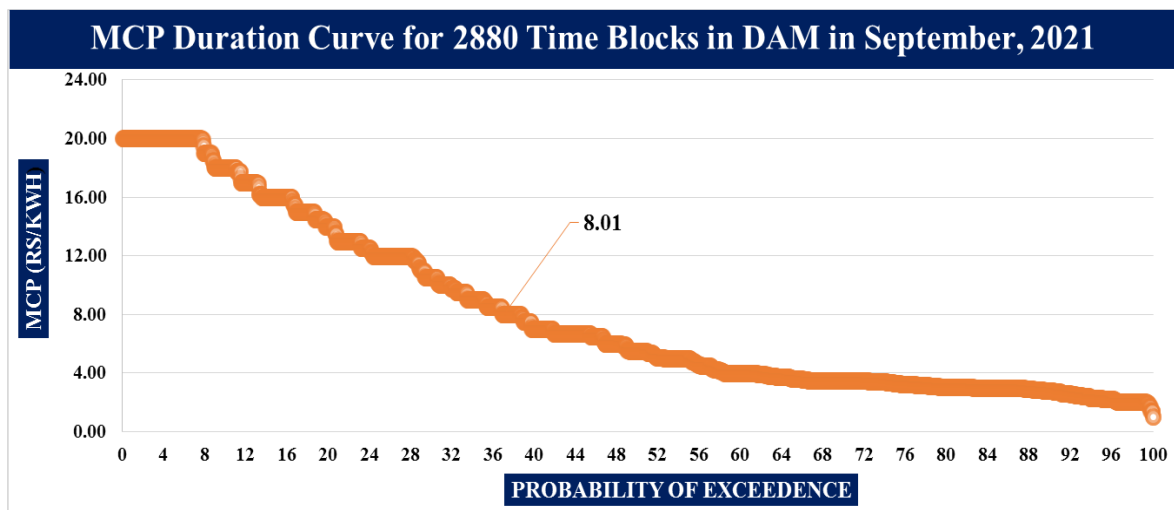


Figure-4

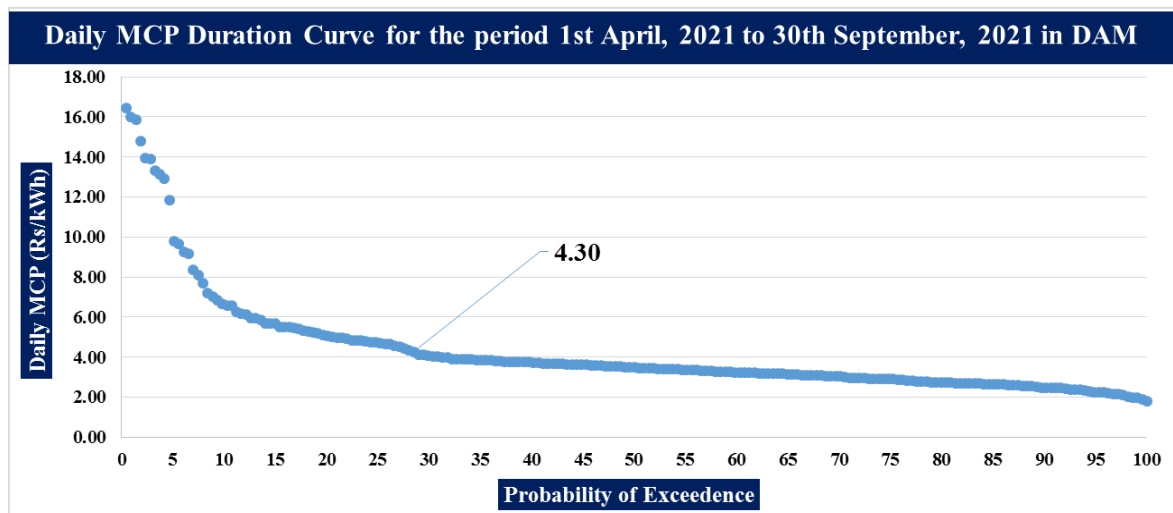


Figure-5

- 8.7. It can be seen in figure 4 above that in the MCP duration curve of October, 2021, for 36.83 % of the time MCP was above average MCP of the month (i.e. **Rs. 8.01/kWh**) and almost 63.00 % of the time 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 October, 2021 (figure 5), that for 36.83 % of the time the daily MCP was above the average MCP for the period (i.e. **Rs. 4.30/kWh**) and for 63.00 % of the time the daily MCP was below the average MCP for the period.
- 8.8. 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 8.1 and 8.2 above**.
- 8.9. On **21 days** during the month, the maximum MCP occurred during the **time period 18:00-19:15 Hrs.** [Annexure VI]
- 8.10. On **13 days** during the month, the minimum FSV occurred during the **time period 13:00-13:30 Hrs.** [Annexure VI]

- 8.11.** On **22 days** during the month, the minimum MCP occurred during the **time period 12:30-13:30 Hrs. [Annexure VI]**
- 8.12.** The maximum demand met during the month of October, 2021 in the country occurred on **11th October, 2021 at 174.60 GW**, which is 3.40 % less than the maximum demand occurred during **September, 2021 [i.e. 180.75 GW on 20th September, 2021]** and is 2.77 % more than the maximum demand occurred during October, 2020 i.e. **[169.90 GW on 08th October, 2020]**.
- 8.13.** In the month of October, 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 October, 2021, so one nation one price was observed on **4 days** during which transaction of electricity happened (i.e. 1st, 2nd, 5th and 6th October, 2021). While in the month of September, 2021, One nation One Price was observed in IEX for **all 30 days** during the month, as there was no transmission congestion. Whereas, in PXIL also, there was no congestion in transmission system during September, 2021, so one nation one price was observed on **6 days** during which transaction of electricity happened (i.e. 21st to 23rd September, 26th September and 29th to 30th September, 2021). Similarly, in the month of October, 2020, there was congestion in transmission system to the tune of **2.01 MU** in IEX on 28th and 29th October, 2020, hence, one nation one price was observed for **29 days** on IEX in October, 2020. In PXIL, there was no congestion in transmission system during October, 2020, so one nation one price was observed on all 31 days during the month.
- 8.14.** In the month of October, 2021, there was **no** real time curtailment in IEX and PXIL. Further, in the month of September, 2021, there was no real time curtailment in IEX and PXIL. In October, 2020, there was real time curtailment of **0.16 MU** in IEX, whereas in PXIL, there was **no** real time curtailment during October, 2020.
- 8.15.** The **top 10 sellers** on the power exchanges in **Day Ahead Market (DAM)** in the month of October, 2021 were **Telangana, Karnataka, West Bengal, Teesta-3, Odisha, Sembcorp Gayatri, Chhattisgarh, Himachal Pradesh, Essar Power MP Ltd and Bihar**, which constituted **50.06%** of the market volume. **[Annexure VII]**
- 8.16.** The **top 10 purchasers** on the power exchanges in **Day Ahead Market (DAM)** in the month of October, 2021 were **Gujarat, Andhra Pradesh, Tamil Nadu, Haryana, Punjab, Maharashtra, Uttar Pradesh, Rajasthan, Arcelor Mittal Nippon steel (ESIL) and Assam**, which constituted **88.95 %** of the market volume. **[Annexure VII]**
- 8.17.** The total volume of electricity purchased by Discoms/Licensees in DAM in the month of October, 2021 was **6,405.58 MU**, which constituted **97.52 %** of total volume of electricity purchased on both the power exchanges.
- 8.18.** Similarly, the total volume of electricity sold by Discoms/Licensees in DAM in the month of October, 2021 was **3,572.64 MU**, which constituted **54.35%** 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 OCTOBER, 2021

- 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 were the total purchase bid and the 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 **1.23**. 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 October, 2021 for RTM transactions.
- 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 MCP and FSV are shown in Figure-6 below:

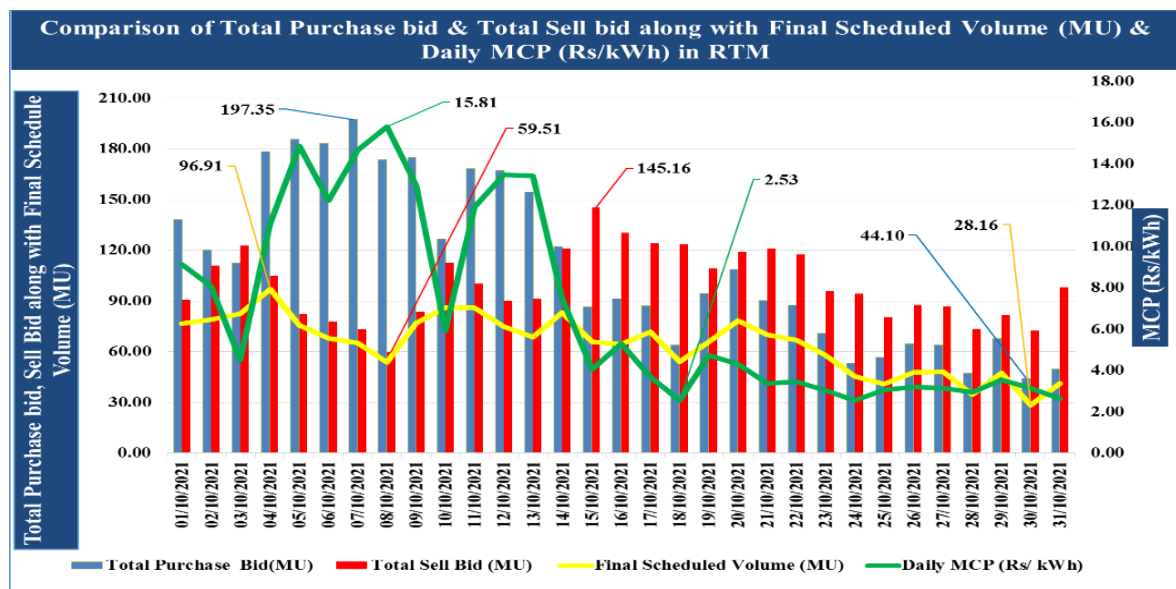


Figure-6

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

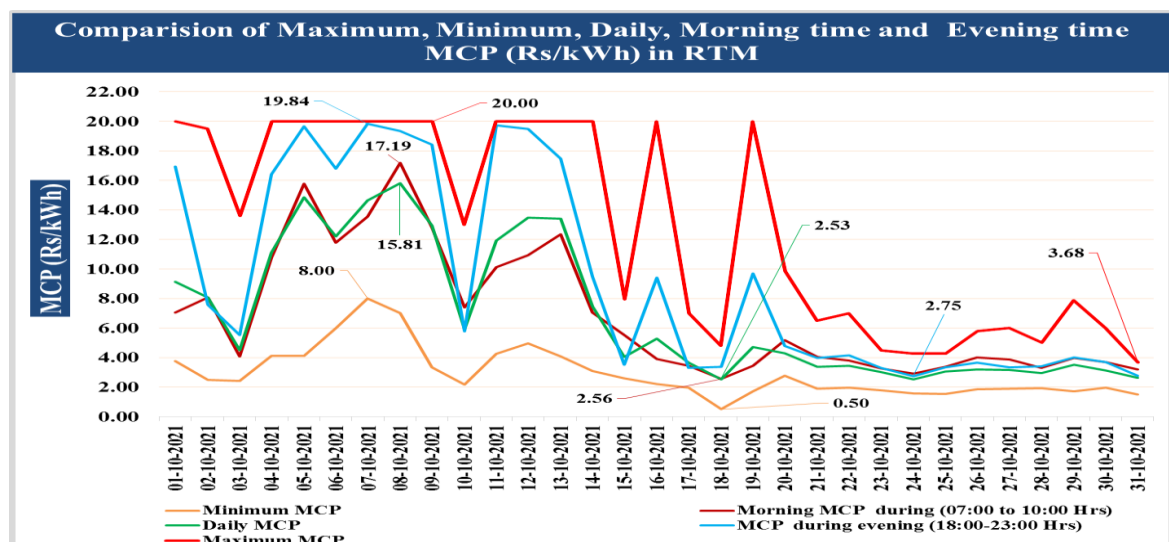


Figure-7

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

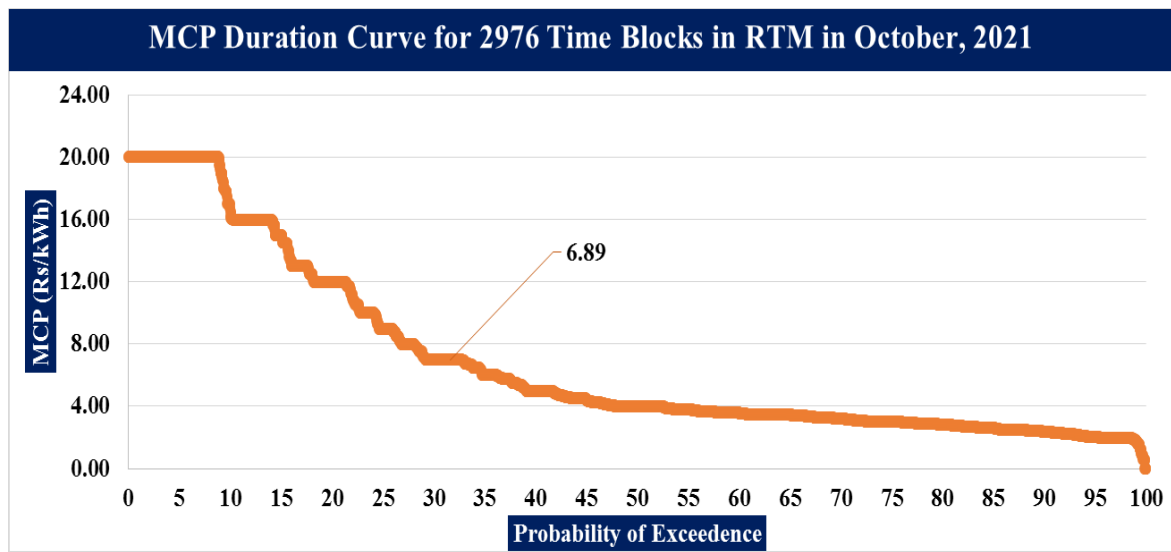


Figure-8

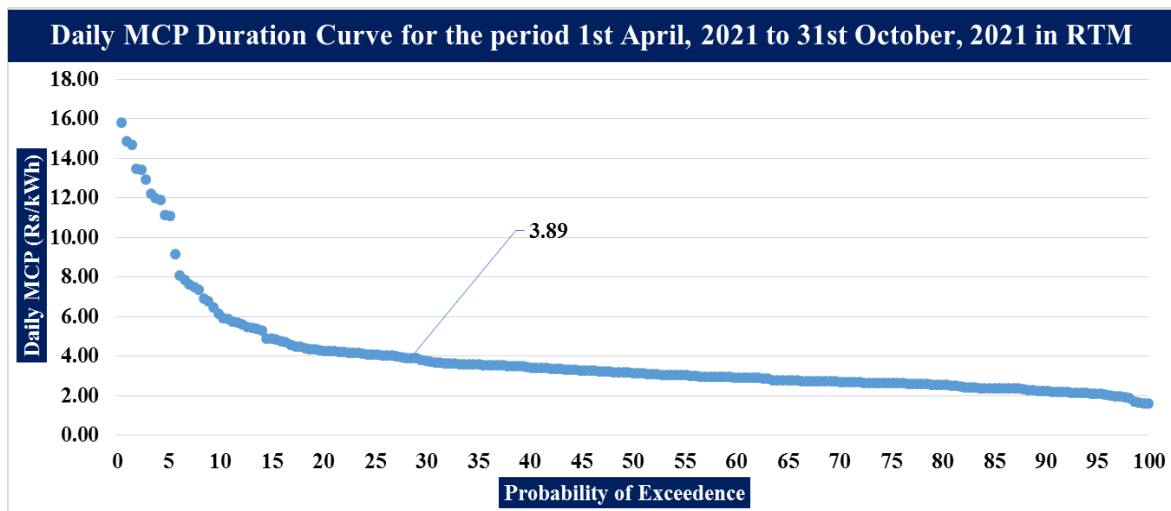


Figure-9

- 9.6. It can be seen in figure 8 above that in the MCP duration curve of October, 2021, for 33.03 % of the time the MCP was above the average MCP of the month (i.e. **Rs. 6.89/kWh**) and for 66.97 % 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 October, 2021 (figure 9) that, for 28.97 % of the time the daily MCP was above the average MCP for the period (i.e. **Rs. 3.89/kWh**) and for 71.03 % of the time the daily MCP was below the average MCP for the period.
- 9.7. On **10 days** during the month, the maximum MCP occurred during the **time period 18:15-19:15 Hrs. [Annexure X]**
- 9.8. There was **no** real time curtailment in IEX in Real Time Market (RTM) during October, 2021 and September, 2021, whereas, no transaction of electricity happened in PXIL during October, 2021 and September, 2021. Similarly, in October, 2020, there was no real time curtailment in IEX, whereas, no transaction of electricity happened in PXIL during October, 2020 in Real Time Market (RTM).

- 9.9.** In the month of October, 2021, there was congestion to the tune of **1.14 MU** in IEX in Real Time Market on **5 days** (10th to 13th October, 2021 and 22nd October, 2021), hence one nation one price was observed for **26 days** only in IEX during October, 2021, whereas, in PXIL, no transaction of electricity happened in October, 2021 in Real Time Market. Further, in the month of September, 2021, there was transmission congestion of **2.11 MU** in IEX in Real Time Market on 10 days (1st September, 06th to 07th September, 09th September, 16th to 19th September, 21st September, and 29th September, 2021), hence, one nation one price was observed for **20 days** only in IEX during September, 2021. Whereas, in PXIL, no transaction of electricity happened in September, 2021 in Real Time Market. In the month of October, 2020, there was congestion of **0.05 MU** in transmission system in IEX in Real Time Market on two days, hence, one nation one price was observed for **29 days** in IEX in October, 2020. Whereas, in PXIL, no transaction of electricity happened in October, 2020 in Real Time Market.
- 9.10.** The **top 10 sellers** on the power exchanges in Real Time Market (RTM) in the month of October, 2021 were **Telangana, West Bengal, Madhya Pradesh, Odisha, Karnataka, Rajasthan, Delhi, J&K, Kameng HEP and RKM Power**, which constituted **66.99 %** of the market volume. [Annexure XI]
- 9.11.** The **top 10 purchasers** on the power exchanges in Real Time Market (RTM) in the month of October, 2021 were **Andhra Pradesh, Tamil Nadu, Gujarat, Haryana, DVC, Rajasthan, Uttar Pradesh, Maharashtra, J&K and Telangana**, which constituted **81.88%** of the market volume. [Annexure XI]
- 9.12.** The total volume of electricity purchased by Discoms/Licensees in RTM in the month of October, 2021 was **1,971.01 MU**, which constituted **98.59 %** 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 October, 2021 was **1,531.71 MU**, which constituted **76.62 %** of total volume of electricity sold 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	6,418.27	1.27	4.40	6.52	0	0
Total Quarter- II	July- September, 2021	17,305.28	9.15			5.13	0
Quarter -III	October, 2021	6,568.31	0.37	8.01	7.17	0	0
	November, 2021						
	December, 2021						
Total Quarter- III	October - December, 2021	6,568.31	0.37			0	0
Total April, 2021 - March, 2022		38,250.86	39.48				

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	198.18	209.46	407.64
Total Quarter -II	July- September, 2021	1,513.93	760.96	2,274.89
Quarter- III	October, 2021	298.11	223.78	521.89
	November, 2021			
	December, 2021			
Total Quarter- III	October - December, 2021	298.11	223.78	521.89
Total April, 2021 - March, 2022		3,185.87	2,338.86	5,524.73

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	192.87	251.17	444.04
Total Quarter -II	July- September, 2021	1,571.36	822.52	2,393.88
Quarter- III	October, 2021	224.78	234.56	459.34
	November, 2021			
	December, 2021			
Total Quarter- III	October - December, 2021	224.78	234.56	459.34
Total April, 2021 - March, 2022		3,168.25	2,365.82	5,534.07

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

(i) Top five Buyers in Bilateral transactions

Entity Name	Direct		Entity Name	Through Traders	
	(MU)	Percent		(MU)	Percent
Haryana	319.36	21.89%	Maharashtra	493.95	20.30%
Maharashtra	215.09	14.74%	Gujarat	441.34	18.13%
Madhya Pradesh	143.18	9.81%	Odisha	375.60	15.43%
Jharkhand	126.95	8.70%	Haryana	169.72	6.97%
Telangana	113.70	7.79%	West Bengal	128.85	5.29%
Total Volume	918.27	62.93%	Total Volume	1609.46	66.13%
Total Volume in Bilateral	1,459.17		Total Volume in Bilateral	2,433.85	

(ii) Top five Sellers in Bilateral transactions

Entity Name	Direct		Entity Name	Through Traders	
	(MU)	Percent		(MU)	Percent
DVC	186.21	13.38%	Raipur Energen	336.02	13.43%
Adhunik Power	126.95	9.12%	Karnataka	213.17	8.52%
SKS Raigarh	126.31	9.07%	JITPL	199.01	7.95%
RKM_POWER	112.28	8.07%	JPNIGRIE_JNSTPP	151.86	6.07%
J & K	109.92	7.90%	JPL	140.68	5.62%
Total Volume	661.66	47.53%	Total Volume	1040.73	41.58%
Total Volume in Bilateral	1,391.97		Total Volume in Bilateral	2,502.74	

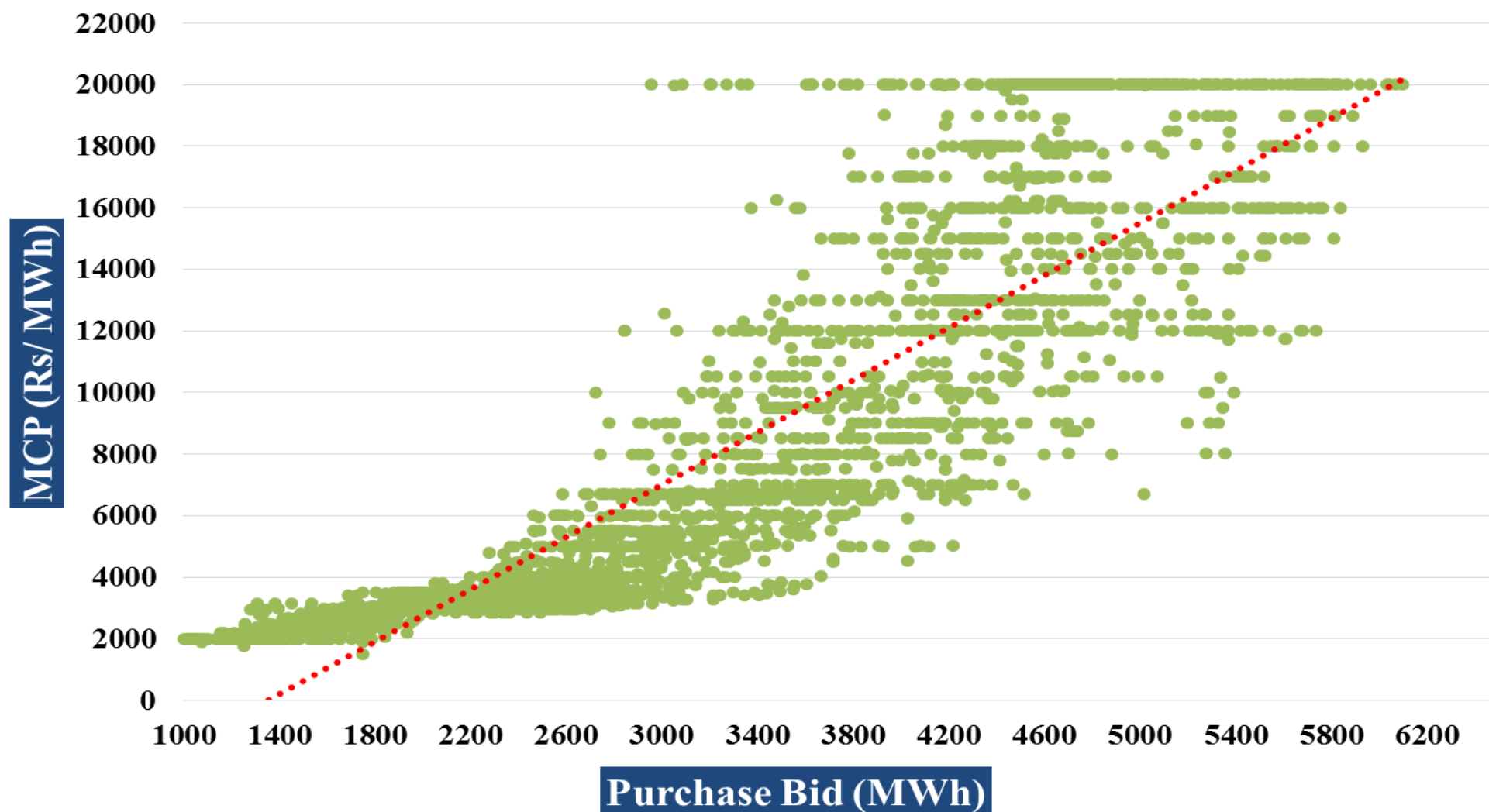
Annexure-IV**Evening, Day, Night, Morning, Maximum, Minimum, Average MCP (Rs/kWh) and Final Scheduled Volume (MU) in DAM**

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)
01-10-2021	4.36	3.86	14.53	5.90	20.00	2.98	7.21	245.31
02-10-2021	5.49	3.89	13.06	8.17	20.00	3.04	7.70	230.25
03-10-2021	4.42	3.20	7.64	9.20	16.00	2.84	6.26	223.94
04-10-2021	6.95	5.83	15.01	9.06	20.00	3.50	9.26	230.95
05-10-2021	9.84	9.33	15.58	12.26	20.00	6.52	11.83	234.43
06-10-2021	13.65	10.61	17.27	14.61	20.00	5.65	13.95	257.09
07-10-2021	13.32	12.19	15.23	11.39	20.00	8.52	12.91	264.41
08-10-2021	13.56	13.68	17.75	14.01	20.00	10.52	14.78	254.45
09-10-2021	15.31	13.40	19.25	16.13	20.00	7.00	15.98	265.41
10-10-2021	12.37	10.14	12.84	17.38	20.00	6.00	13.29	267.34
11-10-2021	15.44	13.71	19.92	16.68	20.00	7.00	16.42	264.56
12-10-2021	14.69	13.66	19.32	15.71	20.00	10.09	15.85	281.82
13-10-2021	10.18	7.68	17.91	16.18	20.00	6.70	13.13	279.71
14-10-2021	9.22	9.59	17.95	17.33	20.00	6.70	13.87	264.04
15-10-2021	7.02	3.41	15.36	12.57	20.00	2.86	9.67	257.31
16-10-2021	5.64	3.71	10.93	4.67	16.00	2.95	6.12	229.88
17-10-2021	4.02	2.67	5.17	6.33	9.00	1.50	4.59	175.97
18-10-2021	3.74	2.76	5.62	3.17	8.50	2.00	3.76	164.55
19-10-2021	3.37	3.19	6.33	3.26	9.00	2.20	4.02	162.68
20-10-2021	3.81	3.73	10.07	3.70	20.00	2.95	5.32	200.01
21-10-2021	4.76	4.00	11.57	4.56	20.00	3.15	6.18	204.79
22-10-2021	3.80	3.26	6.75	3.41	16.00	2.94	4.26	191.59
23-10-2021	3.89	3.28	11.21	3.48	20.00	2.70	5.43	181.66
24-10-2021	3.02	2.25	4.48	3.04	8.00	2.00	3.16	155.22
25-10-2021	3.62	3.11	5.38	2.68	12.55	2.00	3.64	156.27
26-10-2021	3.51	2.90	5.41	2.82	9.00	2.00	3.61	161.02
27-10-2021	4.06	2.92	5.37	3.04	10.00	2.00	3.76	173.74
28-10-2021	3.58	2.58	5.07	2.69	10.00	1.75	3.40	158.47
29-10-2021	3.67	2.53	4.57	2.61	8.00	2.00	3.25	143.94
30-10-2021	3.89	2.78	4.45	2.94	6.70	2.20	3.43	172.33
31-10-2021	2.75	1.80	2.94	2.23	3.50	1.00	2.37	115.18
Maximum	15.44	13.71	19.92	17.38	20.00	10.52	16.42	281.82
Minimum	3.02	2.25	4.45	2.61	6.70	1.50	3.16	143.94
Average	7.14	6.00	11.37	8.30	15.96	4.14	8.20	215.10

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 October, 2021 in DAM



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

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

Date	Max. FSV (MU)		Max. MCP (Rs/kWh)		Min FSV (MU)		Min. MCP (Rs/kWh)	
	Time Block	Value	Time Block	Value	Time Block	Value	Time Block	Value
01-10-2021	16:30 - 16:45	3.13	18:45 - 19:00	20.00	13:00 - 13:15	2.13	13:15 - 13:30	2.98
02-10-2021	06:45 - 07:00	2.95	18:45 - 19:00	20.00	13:00 - 13:15	1.91	13:00 - 13:15	3.04
03-10-2021	23:00 - 23:15	2.75	18:45 - 19:00	16.00	13:15 - 13:30	1.78	13:15 - 13:30	2.84
04-10-2021	06:45 - 07:00	2.87	18:30 - 18:45	20.00	13:15 - 13:30	2.14	13:00 - 13:15	3.50
05-10-2021	07:30 - 07:45	2.99	17:30 - 17:45	20.00	13:15 - 13:30	2.12	13:15 - 13:30	6.52
06-10-2021	21:15 - 21:30	3.13	06:15 - 06:30	20.00	15:45 - 16:00	2.34	13:15 - 13:30	5.65
07-10-2021	21:15 - 21:30	3.21	06:15 - 06:30	20.00	15:45 - 16:00	2.36	13:00 - 13:15	8.52
08-10-2021	22:15 - 22:30	3.03	17:15 - 17:30	20.00	14:15 - 14:30	2.25	12:30 - 12:45	10.52
09-10-2021	20:15 - 20:30	3.12	17:15 - 17:30	20.00	03:00 - 03:15	2.43	12:30 - 12:45	7.00
10-10-2021	19:30 - 19:45	3.11	00:00 - 00:15	20.00	08:15 - 08:30	2.21	12:45 - 13:00	6.00
11-10-2021	00:00 - 00:15	3.08	00:00 - 00:15	20.00	09:15 - 09:30	2.25	13:15 - 13:30	7.00
12-10-2021	21:30 - 21:45	3.23	18:00 - 18:15	20.00	08:15 - 08:30	2.57	10:45 - 11:00	10.09
13-10-2021	02:00 - 02:15	3.36	00:00 - 00:15	20.00	16:30 - 16:45	2.46	16:30 - 16:45	6.70
14-10-2021	22:45 - 23:00	3.18	00:00 - 00:15	20.00	15:30 - 15:45	2.29	13:00 - 13:15	6.70
15-10-2021	22:00 - 22:15	3.44	19:45 - 20:00	20.00	13:15 - 13:30	1.95	13:15 - 13:30	2.86
16-10-2021	21:30 - 21:45	3.06	19:00 - 19:15	16.00	16:30 - 16:45	1.70	13:00 - 13:15	2.95
17-10-2021	00:00 - 00:15	2.41	18:45 - 19:00	9.00	16:15 - 16:30	1.51	13:00 - 13:15	1.50
18-10-2021	19:00 - 19:15	2.16	19:00 - 19:15	8.50	05:15 - 05:30	1.29	13:00 - 13:15	2.00
19-10-2021	19:00 - 19:15	2.38	18:30 - 18:45	9.00	02:30 - 02:45	1.06	04:00 - 04:15	2.20
20-10-2021	19:45 - 20:00	2.49	18:30 - 18:45	20.00	02:30 - 02:45	1.60	04:00 - 04:15	2.95
21-10-2021	20:30 - 20:45	2.42	18:15 - 18:30	20.00	02:30 - 02:45	1.85	04:00 - 04:15	3.15
22-10-2021	14:30 - 14:45	2.30	18:30 - 18:45	16.00	03:15 - 03:30	1.69	03:15 - 03:30	2.94
23-10-2021	07:15 - 07:30	2.20	18:00 - 18:15	20.00	13:00 - 13:15	1.56	13:00 - 13:15	2.70
24-10-2021	06:45 - 07:00	2.05	18:30 - 18:45	8.00	12:30 - 12:45	1.26	14:00 - 14:15	2.00
25-10-2021	21:45 - 22:00	2.17	18:30 - 18:45	12.55	02:15 - 02:30	1.23	03:45 - 04:00	2.00
26-10-2021	19:00 - 19:15	2.07	18:30 - 18:45	9.00	13:00 - 13:15	1.29	03:45 - 04:00	2.00
27-10-2021	18:30 - 18:45	2.20	18:15 - 18:30	10.00	13:00 - 13:15	1.36	13:00 - 13:15	2.00
28-10-2021	06:30 - 06:45	2.18	18:30 - 18:45	10.00	13:15 - 13:30	1.18	13:15 - 13:30	1.75
29-10-2021	06:45 - 07:00	2.13	18:30 - 18:45	8.00	13:00 - 13:15	0.89	13:00 - 13:15	2.00
30-10-2021	07:15 - 07:30	2.42	18:15 - 18:30	6.70	13:15 - 13:30	1.39	13:15 - 13:30	2.20
31-10-2021	07:15 - 07:30	2.03	18:30 - 18:45	3.50	13:15 - 13:30	0.79	13:15 - 13:30	1.00

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 October, 2021**

S. No.	Entity Name	Sell		Entity Name	Purchase	
		(MU)	Percent (%)		(MU)	Percent (%)
1.	Telangana	525.18	8.00%	Gujarat	2002.85	30.49%
2.	Karnataka	491.09	7.48%	Andhra Pradesh	925.06	14.08%
3.	West Bengal	432.76	6.59%	Tamil Nadu	873.92	13.30%
4.	Teesta -3	361.55	5.50%	Haryana	518.95	7.90%
5.	Orissa	324.82	4.94%	Punjab	490.78	7.47%
6.	Sembcorp Gayatri	265.85	4.05%	Maharashtra	321.37	4.89%
7.	Chhattisgarh	248.86	3.79%	Uttar Pradesh	260.46	3.97%
8.	Himachal Pradesh	230.32	3.51%	Rajasthan	160.41	2.44%
9.	Essar Power MP Ltd	204.87	3.12%	ArcelorMittal Nippon steel (ESIL)	147.73	2.25%
10.	Bihar	203.21	3.09%	Assam	141.53	2.15%
11.	Madhya Pradesh	197.79	3.01%	Bihar	132.47	2.02%
12.	Raipur Energen	192.24	2.93%	Orissa	96.88	1.47%
13.	Jaypee Nigrie	173.68	2.64%	Madhya Pradesh	95.84	1.46%
14.	Kerala	152.65	2.32%	Dadra & Nagar Haveli	82.96	1.26%
15.	Delhi	151.78	2.31%	Delhi	79.13	1.20%
16.	Jindal Power	146.68	2.23%	DVC	35.43	0.54%
17.	Raigarh Energy Ltd.	135.27	2.06%	Telangana	35.00	0.53%
18.	MB Power	117.84	1.79%	Chhattisgarh	33.19	0.51%
19.	Maharashtra	115.94	1.77%	J&K	29.85	0.45%
20.	Rajasthan	112.77	1.72%	West Bengal	23.89	0.36%
21.	Uttar Pradesh	103.16	1.57%	Karnataka	16.09	0.24%
22.	Shree Cement	98.90	1.51%	Uttarakhand	15.28	0.23%
23.	NTPC Kudgi	92.49	1.41%	Goa WR	11.33	0.17%
24.	Adani Power STG2	85.06	1.29%	BALCO 2	7.88	0.12%
25.	ACBIL	82.88	1.26%	Railways	7.47	0.11%
26.	Jindal Power Ltd. Stg-II	80.17	1.22%	Kerala	7.33	0.11%
27.	Ramagundam Stg-1	65.69	1.00%	Jharkhand	5.22	0.08%
28.	DB Power	64.77	0.99%	Daman & Diu	5.00	0.08%
29.	Sembcorp Energy India Ltd. (formerly Thermal	58.50	0.89%	Meghalaya	3.36	0.05%
30.	Jindal Steel	55.55	0.85%	Chandigarh	1.01	0.02%
31.	RKM Power	48.32	0.74%	Himachal Pradesh	0.63	0.01%
32.	Talcher Stg-2	46.07	0.70%	Tripura	0.36	0.01%
33.	GMR Kamalanga	43.49	0.66%	Palatana	0.01	0.00%
34.	Singoli Bhagwati	40.80	0.62%	NVVN (SNA) - NEA	0.01	0.00%
35.	JITPL	40.64	0.62%			
36.	Karcham Wangtoo	38.16	0.58%			
37.	Kameng HEP	37.92	0.58%			
38.	Tashiding HEP	37.78	0.58%			

39.	Assam	37.06	0.56%			
40.	Jorethang	36.15	0.55%			
41.	Maruti Clean Coal Power	34.86	0.53%			
42.	Gujarat	32.90	0.50%			
43.	AD Hydro	32.86	0.50%			
44.	Sainj HEP	29.41	0.45%			
45.	Andhra Pradesh	29.36	0.45%			
46.	Tamilnadu	29.32	0.45%			
47.	Costal Energen	28.91	0.44%			
48.	J&K	25.65	0.39%			
49.	Bongaigaon	23.20	0.35%			
50.	Adhunik Power	22.88	0.35%			
51.	Torrent Power	22.54	0.34%			
52.	Palatana	21.95	0.33%			
53.	Arunachal Pradesh	21.61	0.33%			
54.	Dikchu	20.19	0.31%			
55.	DGEN Mega Power	20.09	0.31%			
56.	Simhadri Stg-2	19.64	0.30%			
57.	Chandigarh	18.36	0.28%			
58.	Ramagundam Stg-3	17.90	0.27%			
59.	Sikkim	16.82	0.26%			
60.	Mizoram	15.39	0.23%			
61.	Goa WR	14.22	0.22%			
62.	Adani Green Solar Jaisalmer	11.67	0.18%			
63.	Meghalaya	10.65	0.16%			
64.	Tripura	10.48	0.16%			
65.	Jharkhand	8.78	0.13%			
66.	Sorang HEP, (Himachal Sorang Power Private Ltd)	8.54	0.13%			
67.	Chuzachen	7.04	0.11%			
68.	Haryana	5.45	0.08%			
69.	Nagaland	3.68	0.06%			
70.	Jhabua Power	3.34	0.05%			
71.	IL&FS	2.89	0.04%			
72.	Adani Green Energy Nineteen Limited	2.82	0.04%			
73.	RGPP	2.82	0.04%			
74.	NLC TPS-II Stg-2	2.64	0.04%			
75.	Adani Wind Energy Kutchh Five Limited	1.93	0.03%			
76.	Lanco Budhil	1.71	0.03%			
77.	Uttarakhand	1.52	0.02%			
78.	Azure Power Forty Three Private Limited	1.52	0.02%			
79.	Adani Hybrid Energy Jaisalmer Two Limited	1.02	0.02%			
80.	DVC	1.01	0.02%			

81.	Adani Hybrid Energy	0.94	0.01%			
82.	Dhariwal	0.53	0.01%			
83.	GMR Warora	0.36	0.01%			
84.	Continuum Power Trading (TN) Private	0.18	0.00%			
85.	NLC TPS-II	0.13	0.00%			
86.	Renew Solar Energy (Jharkhand Three) Pvt Ltd (RSEJTPL)	0.11	0.00%			
87.	Farakka	0.06	0.00%			
88.	Dadra & Nagar Haveli	0.05	0.00%			
89.	Kahalgaon	0.05	0.00%			
90.	Talcher	0.01	0.00%			
Total Volume of top 10		3,238.51	49.30%	Total Volume of top 10	5,843.06	88.95%
Total Volume in PXs		6,568.68		Total Volume in PXs	6,568.68	

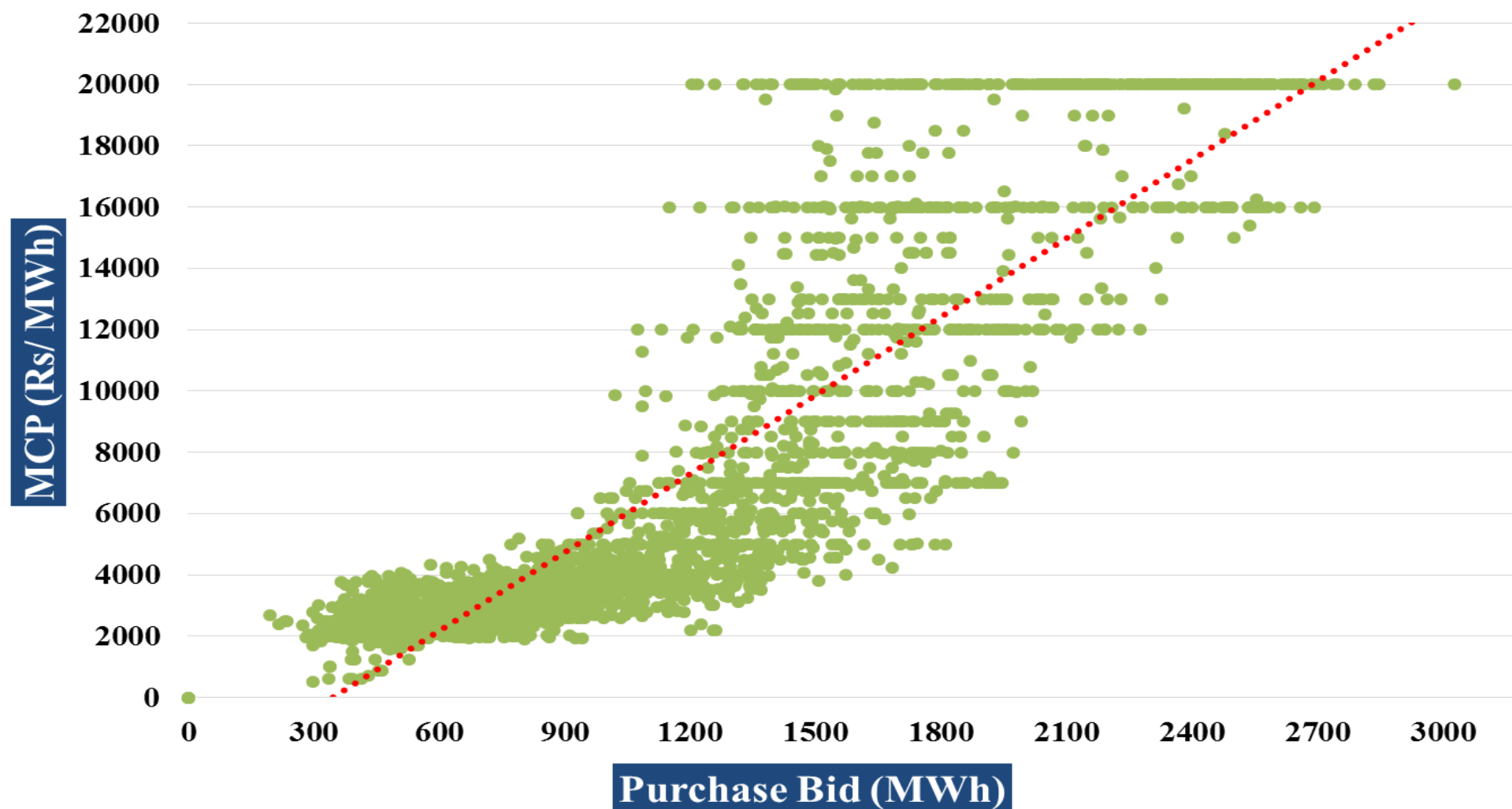
Annexure-VIII**Evening, Day, Night, Morning, Maximum, Minimum, Average MCP (Rs/kWh) and Final Scheduled Volume (MU) in RTM**

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
01-10-2021	7.06	5.97	16.96	6.77	20.00	3.76	9.13	76.40
02-10-2021	8.08	3.11	7.59	13.48	19.50	2.49	8.08	78.93
03-10-2021	4.09	2.82	5.53	5.53	13.62	2.42	4.50	82.29
04-10-2021	10.76	10.20	16.43	7.71	20.00	4.10	11.13	96.91
05-10-2021	15.77	10.46	19.67	14.67	20.00	4.13	14.87	75.31
06-10-2021	11.79	10.20	16.82	10.54	20.00	6.00	12.22	68.00
07-10-2021	13.56	12.54	19.84	12.97	20.00	8.00	14.66	64.95
08-10-2021	17.19	12.54	19.35	15.84	20.00	7.00	15.81	53.64
09-10-2021	12.80	7.42	18.42	13.88	20.00	3.33	12.95	76.75
10-10-2021	7.41	3.15	5.78	7.94	13.00	2.18	5.91	85.72
11-10-2021	10.14	10.08	19.75	8.05	20.00	4.25	11.91	86.01
12-10-2021	10.93	7.49	19.47	15.81	20.00	4.97	13.48	74.95
13-10-2021	12.36	6.35	17.48	17.59	20.00	4.07	13.41	68.67
14-10-2021	7.03	4.00	9.48	9.53	20.00	3.10	7.49	83.27
15-10-2021	5.53	3.14	3.52	4.60	7.96	2.60	4.06	65.64
16-10-2021	3.90	4.42	9.41	3.42	20.00	2.19	5.29	64.36
17-10-2021	3.45	2.80	3.29	4.99	7.00	1.96	3.67	71.70
18-10-2021	2.56	2.72	3.37	1.60	4.80	0.50	2.53	53.94
19-10-2021	3.45	3.27	9.71	2.61	20.00	1.71	4.72	65.91
20-10-2021	5.17	3.70	4.78	4.02	9.87	2.78	4.31	78.12
21-10-2021	4.03	2.91	3.98	2.95	6.50	1.90	3.38	69.77
22-10-2021	3.81	2.93	4.15	3.17	7.00	1.96	3.45	66.67
23-10-2021	3.28	3.12	3.30	2.56	4.50	1.80	3.03	57.70
24-10-2021	2.93	2.33	2.75	2.35	4.28	1.59	2.54	45.23
25-10-2021	3.39	3.08	3.33	2.61	4.28	1.55	3.06	40.91
26-10-2021	4.00	2.84	3.67	2.69	5.80	1.86	3.20	47.82
27-10-2021	3.86	3.01	3.33	2.73	6.00	1.90	3.15	48.23
28-10-2021	3.31	2.94	3.42	2.34	5.00	1.93	2.95	34.53
29-10-2021	3.99	3.62	4.01	2.76	7.89	1.70	3.53	47.43
30-10-2021	3.68	2.89	3.68	2.60	6.00	1.98	3.13	28.16
31-10-2021	3.21	2.40	2.78	2.38	3.68	1.50	2.62	41.23
Maximum	17.19	12.54	19.84	17.59	20.00	8.00	15.81	96.91
Minimum	2.56	2.33	2.75	1.60	4.28	0.50	2.53	28.16
Average	6.98	5.20	9.41	6.94	13.10	2.99	7.05	65.26

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 October, 2021 in RTM



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
01-10-2021	12:30 - 12:45	1.27	19:00 - 19:15	20.00	19:00 - 19:15	0.37	10:00 - 10:15	3.76
02-10-2021	11:30 - 11:45	1.10	02:00 - 02:15	19.50	00:30 - 00:45	0.42	09:00 - 09:15	2.49
03-10-2021	23:00 - 23:15	1.32	00:30 - 00:45	13.62	12:15 - 12:30	0.60	12:15 - 12:30	2.42
04-10-2021	09:45 - 10:00	1.51	16:30 - 16:45	20.00	16:45 - 17:00	0.53	03:45 - 04:00	4.10
05-10-2021	09:45 - 10:00	1.10	00:00 - 00:15	20.00	06:45 - 07:00	0.28	12:00 - 12:15	4.13
06-10-2021	13:00 - 13:15	0.93	06:30 - 06:45	20.00	19:30 - 19:45	0.42	09:30 - 09:45	6.00
07-10-2021	13:30 - 13:45	1.21	17:15 - 17:30	20.00	17:45 - 18:00	0.41	04:00 - 04:15	8.00
08-10-2021	14:00 - 14:15	0.94	07:45 - 08:00	20.00	17:15 - 17:30	0.33	13:00 - 13:15	7.00
09-10-2021	15:00 - 15:15	1.26	18:30 - 18:45	20.00	07:30 - 07:45	0.52	13:00 - 13:15	3.33
10-10-2021	09:15 - 09:30	1.23	07:15 - 07:30	13.00	18:15 - 18:30	0.58	09:45 - 10:00	2.18
11-10-2021	15:45 - 16:00	1.14	17:30 - 17:45	20.00	18:15 - 18:30	0.30	04:45 - 05:00	4.25
12-10-2021	05:45 - 06:00	1.06	00:30 - 00:45	20.00	18:30 - 18:45	0.39	13:00 - 13:15	4.97
13-10-2021	11:45 - 12:00	1.13	00:00 - 00:15	20.00	18:15 - 18:30	0.38	15:45 - 16:00	4.07
14-10-2021	21:00 - 21:15	1.34	00:30 - 00:45	20.00	13:00 - 13:15	0.55	12:00 - 12:15	3.10
15-10-2021	08:45 - 09:00	0.98	00:30 - 00:45	7.96	12:00 - 12:15	0.47	15:15 - 15:30	2.60
16-10-2021	20:30 - 20:45	1.01	18:45 - 19:00	20.00	05:45 - 06:00	0.50	04:45 - 05:00	2.19
17-10-2021	02:15 - 02:30	0.97	01:00 - 01:15	7.00	23:45 - 24:00	0.49	17:00 - 17:15	1.96
18-10-2021	19:00 - 19:15	0.92	17:45 - 18:00	4.80	03:15 - 03:30	0.30	03:15 - 03:30	0.50
19-10-2021	23:00 - 23:15	1.10	18:30 - 18:45	20.00	02:00 - 02:15	0.39	04:15 - 04:30	1.71
20-10-2021	12:45 - 13:00	1.12	18:30 - 18:45	9.87	18:15 - 18:30	0.31	12:30 - 12:45	2.78
21-10-2021	11:45 - 12:00	0.98	18:30 - 18:45	6.50	05:45 - 06:00	0.45	13:00 - 13:15	1.90
22-10-2021	18:45 - 19:00	1.06	19:00 - 19:15	7.00	02:45 - 03:00	0.45	13:00 - 13:15	1.96
23-10-2021	19:15 - 19:30	1.01	19:00 - 19:15	4.50	03:00 - 03:15	0.38	04:45 - 05:00	1.80
24-10-2021	19:30 - 19:45	0.67	06:45 - 07:00	4.28	06:00 - 06:15	0.28	03:00 - 03:15	1.59
25-10-2021	19:30 - 19:45	0.78	07:15 - 07:30	4.28	05:45 - 06:00	0.19	01:30 - 01:45	1.55
26-10-2021	20:45 - 21:00	0.88	17:45 - 18:00	5.80	01:15 - 01:30	0.24	02:45 - 03:00	1.86
27-10-2021	18:45 - 19:00	0.81	06:30 - 06:45	6.00	05:30 - 05:45	0.28	12:00 - 12:15	1.90
28-10-2021	18:45 - 19:00	0.73	17:30 - 17:45	5.00	01:00 - 01:15	0.20	03:00 - 03:15	1.93
29-10-2021	12:00 - 12:15	0.75	18:15 - 18:30	7.89	04:45 - 05:00	0.21	04:00 - 04:15	1.70
30-10-2021	18:45 - 19:00	0.56	18:30 - 18:45	6.00	05:00 - 05:15	0.09	03:00 - 03:15	1.98
31-10-2021	22:30 - 22:45	0.71	07:30 - 07:45	3.68	03:30 - 03:45	0.23	08:15 - 08:30	1.50

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 October, 2021**

S. No.	Entity Name	Sell		Entity Name	Purchase	
		(MU)	Percent (%)		(MU)	Percent (%)
1.	Telangana	241.33	12.07%	Andhra Pradesh	238.75	11.94%
2.	West Bengal	240.38	12.02%	Tamilnadu	234.22	11.72%
3.	Madhya Pradesh	170.26	8.52%	Gujarat	208.58	10.43%
4.	Orissa	142.72	7.14%	Haryana	186.74	9.34%
5.	Karnataka	134.04	6.70%	DVC	180.98	9.05%
6.	Rajasthan	100.85	5.04%	Rajasthan	160.38	8.02%
7.	Delhi	90.28	4.52%	Uttar Pradesh	154.43	7.72%
8.	J&K	82.64	4.13%	Maharashtra	128.73	6.44%
9.	Kameng HEP	72.54	3.63%	J&K	85.80	4.29%
10.	RKM Power	64.12	3.21%	Telangana	58.32	2.92%
11.	Kerala	57.33	2.87%	Bihar	47.98	2.40%
12.	Himachal Pradesh	45.83	2.29%	Delhi	43.74	2.19%
13.	Assam	45.26	2.26%	Orissa	41.72	2.09%
14.	Sasan UMPP	42.58	2.13%	Assam	38.51	1.93%
15.	Bihar	42.44	2.12%	Punjab	34.72	1.74%
16.	Chhattisgarh	36.16	1.81%	West Bengal	34.55	1.73%
17.	MB Power	34.40	1.72%	Chhattisgarh	31.59	1.58%
18.	NLC TPS-II	26.42	1.32%	ArcelorMittal Nippon	18.47	0.92%
19.	Uttar Pradesh	21.23	1.06%	Madhya Pradesh	14.01	0.70%
20.	NLC TPS-II Stg-2	18.63	0.93%	Himachal Pradesh	13.51	0.68%
21.	NLC	18.21	0.91%	Kerala	7.97	0.40%
22.	Manipur	15.79	0.79%	Karnataka	5.12	0.26%
23.	Tripura	15.03	0.75%	Jharkhand	5.08	0.25%
24.	Teesta -3	11.91	0.60%	Dadra & Nagar Haveli	3.49	0.17%
25.	GMR Warora	10.82	0.54%	Unchahar-IV	3.16	0.16%
26.	NTPC Kudgi	10.76	0.54%	Tripura	3.06	0.15%
27.	Maruti Clean Coal	10.19	0.51%	Daman & Diu	2.74	0.14%
28.	Andhra Pradesh	8.21	0.41%	Manipur	2.50	0.13%
29.	Maharashtra	8.04	0.40%	BALCO 2	2.22	0.11%
30.	Meghalaya	7.89	0.39%	Goa WR	1.63	0.08%
31.	Ramagundam Stg-1	7.37	0.37%	Rihand-III	1.60	0.08%
32.	DB Power	7.28	0.36%	Uttarakhand	1.26	0.06%
33.	Singoli Bhagwati	7.20	0.36%	Adani Power STG2	1.08	0.05%
34.	Sikkim	7.01	0.35%	Railways	0.59	0.03%
35.	Neyveli New Thermal	6.30	0.31%	Jorethang	0.34	0.02%
36.	Jindal Steel	5.92	0.30%	Meghalaya	0.33	0.02%
37.	Jindal Power	5.77	0.29%	Jhajjar	0.32	0.02%
38.	Jindal Power Ltd. Stg-	4.76	0.24%	Sikkim	0.31	0.02%
39.	RGPL IR	4.74	0.24%	Jindal Power	0.18	0.01%

40.	Jharkhand	4.67	0.23%	Chandigarh	0.15	0.01%
41.	Bongaigaon	4.66	0.23%	Jhabua Power	0.12	0.01%
42.	Tamilnadu	4.56	0.23%	Arunachal Pradesh	0.10	0.00%
43.	Jhajjar	4.16	0.21%	Tashiding HEP	0.08	0.00%
44.	Palatana	3.93	0.20%			
45.	Auraiya_RLNG Fuel	3.93	0.20%			
46.	Gujarat	3.86	0.19%			
47.	Dikchu	3.80	0.19%			
48.	NLC TPS-II Expn	3.70	0.19%			
49.	DGEN Mega Power	3.19	0.16%			
50.	Torrent Power	2.96	0.15%			
51.	Raipur Energen	2.91	0.15%			
52.	Sembcorp Gayatri	2.81	0.14%			
53.	Talcher Stg-2	2.80	0.14%			
54.	NTPC Sholapur	2.78	0.14%			
55.	Mouda Stg-2	2.71	0.14%			
56.	Raigarh Energy Ltd.	2.57	0.13%			
57.	GMR Kamalanga	2.44	0.12%			
58.	Anta_RLNG Fuel	2.33	0.12%			
59.	NTPC Gadarwara	2.22	0.11%			
60.	Jorethang	2.14	0.11%			
61.	Sorang HEP,	2.09	0.10%			
62.	Mouda Stg-1	2.07	0.10%			
63.	Dadri Stg-2	2.02	0.10%			
64.	Haryana	2.01	0.10%			
65.	Tanda Stg-2	1.97	0.10%			
66.	Tashiding HEP	1.93	0.10%			
67.	Rihand-III	1.91	0.10%			
68.	Arunachal Pradesh	1.84	0.09%			
69.	Barh Stg-2	1.72	0.09%			
70.	Jhabua Power	1.66	0.08%			
71.	Kawas_RLNG Fuel	1.62	0.08%			
72.	Dadri_Combined	1.61	0.08%			
73.	Renew Solar Energy	1.50	0.08%			
74.	Singrauli	1.45	0.07%			
75.	Simhadri Stg-2	1.42	0.07%			
76.	ACBIL	1.34	0.07%			
77.	Karcham Wangtoo	1.30	0.06%			
78.	Adani Power STG2	1.29	0.06%			
79.	Shree Cement	1.23	0.06%			
80.	Ramagundam Stg-3	1.17	0.06%			
81.	Dadri_RLNG Fuel	1.14	0.06%			
82.	Sainj HEP	0.95	0.05%			
83.	NTPC Lara	0.88	0.04%			
84.	Khargone STPP	0.86	0.04%			
85.	Punjab	0.73	0.04%			

86.	Kahalgaon	0.69	0.03%			
87.	Essar Power MP Ltd	0.66	0.03%			
88.	Sembcorp Energy India	0.62	0.03%			
89.	AGTPP	0.57	0.03%			
90.	Unchahar-II	0.53	0.03%			
91.	Dadra & Nagar Haveli	0.53	0.03%			
92.	Chuzachen	0.42	0.02%			
93.	Rihand-I	0.40	0.02%			
94.	RGPPL	0.39	0.02%			
95.	Chandigarh	0.35	0.02%			
96.	SKS Power	0.32	0.02%			
97.	Unchahar-IV	0.32	0.02%			
98.	AGBPP	0.31	0.02%			
99.	AD Hydro	0.30	0.01%			
100.	Nagaland	0.29	0.01%			
101.	Unchahar-I	0.29	0.01%			
102.	RGPPL_Others	0.28	0.01%			
103.	Unchahar-III	0.28	0.01%			
104.	Coastal Gujrat Power	0.25	0.01%			
105.	Kahalgaon-II	0.23	0.01%			
106.	Dhariwal	0.20	0.01%			
107.	Adani Green Solar	0.18	0.01%			
108.	Farakka	0.18	0.01%			
109.	Lanco Budhil	0.17	0.01%			
110.	Mizoram	0.15	0.01%			
111.	Dadri TPS	0.14	0.01%			
112.	Rihand-II	0.13	0.01%			
113.	IL&FS	0.12	0.01%			
114.	Maithon Power	0.08	0.00%			
115.	NSPCL Bhilai	0.06	0.00%			
116.	Talcher	0.05	0.00%			
117.	BRBCL	0.04	0.00%			
118.	Sipat Stg-2	0.04	0.00%			
119.	Sipat Stg-1	0.04	0.00%			
120.	Rampur HEP	0.04	0.00%			
121.	Farakka Stg 3	0.03	0.00%			
122.	Uttarakhand	0.02	0.00%			
123.	Vindhyachal stg-1	0.01	0.00%			
124.	Vindhyachal stg-3	0.01	0.00%			
125.	Vindhyachal stg-4	0.01	0.00%			
126.	Vindhyachal stg-5	0.01	0.00%			
Total Volume of top 10		1,339.16	66.99%	Total Volume of top 10	1,636.93	81.88%
Total Volume in PXs		1,999.17		Total Volume in PXs	1,999.17	

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

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

:- No transaction happened.

Note: No Cross Border Transactions of Electricity happened during October, 2021 in IEX.

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

In IEX, during the month of October, 2021 the maximum ACP of Rs 20/kWh was observed on many days during several time blocks. The details of time blocks during which maximum ACP of Rs 20/kWh occurred are shown below:

Months	Date	Time Blocks	Daily MCP (Rs/kWh)
October, 2021	01.10.2021	18:15-18:30 to 19:45-20:00 Hrs	7.21
	02.10.2021	18:00-18:15 to 19:45-20:00 Hrs	7.70
	04.10.2021	18:30-18:45 to 19:45-20:00 Hrs	9.26
	05.10.2021	17:30-17:45 to 17:45-18:00 Hrs & 18:30-18:45 to 19:45-20:00 Hrs	11.83
	06.10.2021	06:15-06:30 to 06:45-07:00 Hrs, 16:00-16:15 to 16:15-16:30 Hrs & 17:00-17:15 to 20:00-20:15 Hrs	13.95
	07.10.2021	06:15-06:30 Hrs, 15:00-15:15 to 16:30-16:45 Hrs & 17:00-17:15 to 19:30-19:45 Hrs	12.91
	08.10.2021	17:15-17:30 to 19:00-19:15 Hrs	14.78
	09.10.2021	17:15-17:30 to 19:30-19:45 Hrs & 22:00-22:15 to 22:15-22:30 Hrs	15.98
	10.10.2021	00:00-00:15 to 00:45-01:00 Hrs & 23:00-23:15 to 23:45-24:00 Hrs	13.29
	11.10.2021	00:00-00:15 to 00:15-00:30 Hrs, 15:30-15:45 to 16:15-16:30 Hrs & 17:15-17:30 to 23:45-24:00 Hrs	16.42
	12.10.2021	18:00-18:15 to 22:45-23:00 Hrs	15.85
	13.10.2021	00:00-00:15 to 00:30-00:45 Hrs & 18:15-18:30 to 23:15-23:30 Hrs	13.13
	14.10.2021	00:00-00:15 to 01:45-02:00 Hrs & 18:15-18:30 to 23:45-24:00 Hrs	13.87
	15.10.2021	00:00-00:15 to 00:30-00:45 Hrs & 01:00-01:15 Hrs	9.67
	20.10.2021	18:30-18:45 to 19:30-19:45 Hrs	5.32
	21.10.2021	18:15-18:30 to 19:30-19:45 Hrs	6.18
	23.10.2021	18:00-18:15 to 19:30-19:45 Hrs	5.43

Appendix-I**Analysis for change in trend of Final Scheduled Volume in DAM on 03rd Monday of October, 2021 (i.e. 18th October, 2021)**

Final Scheduled Volume (MU) and the Daily 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 October, 2021, it is observed that on third Monday (18th October, 2021), FSV showed decreasing trend in comparison to third Sunday (17th October, 2021). On analysis, it has been found as under:

- (i) On third Monday (18th October, 2021), although there was increase in purchase on power exchange by some of the States in comparison to third Sunday (17th October, 2021) by **37.21 MU** [i.e. Maharashtra (11.37 MU), Haryana (9.23 MU), Tamil Nadu (6.31 MU), Punjab (3.85 MU), Rajasthan (2.81 MU) and Goas WR (0.78 MU), etc.], there was also decrease in purchase on power exchange by some of the States by **48.63 MU** [i.e. Gujarat (39.16 MU), Andhra Pradesh (3.28 MU), Bihar (1.78 MU), Uttarakhand (1.72 MU), J&K (1.69 MU) and Telangana (0.46 MU) etc.]. This resulted in an overall decrease in FSV by **11.42 MU** on Monday (18th October, 2021).

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 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. **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.