



मई, 2020 मासिक मार्केट मॉनिटरिंग रिपोर्ट

Monthly Market Monitoring Report

May, 2020



भारत सरकार/ Government of India

विद्युत मंत्रालय/ Ministry of Power

केन्द्रीय विद्युत प्राधिकरण/ Central Electricity Authority

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REPORT FOR MONTH: MAY, 2020

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 May, 2020 is **5,595.97 MU**. The total energy supplied in the country during the month of May, 2020 is **102,183 MU (Provisional)**. Thus, the volume of electricity transacted on the power exchanges in DAM was 5.48 % of the total energy supplied in the country. The total volume of electricity transacted in DAM during April, 2020 was **3,692.04 MU** which was 4.37 % of the total energy supplied in the country during April, 2020 [**84,550 MU**]. Similarly, the total volume of electricity transacted in DAM during May, 2019 was **3,773.64 MU** which was 3.14 % of the total energy supplied in the country during May, 2019 [**120,020 MU**].
- 1.2. The volume of electricity transacted on IEX and PXIL during May, 2020 are 5,573.73 MU and 22.24 MU, respectively, which means that the total volume transacted on IEX is 99.60 % of the total volume on power exchanges. The volume of electricity transacted on IEX during April, 2020 was 3,692.04 MU, whereas no transaction happened on PXIL during April, 2020. Also, the total volume of electricity transacted during May, 2019 on IEX and PXIL was 3,772.47 MU and 1.17 MU, respectively, which means that the total volume transacted on IEX was 99.97 % of the total volume on the power exchanges.
- 1.3. The Average Market Clearing Price (MCP) on IEX during the month of May, 2020 is Rs 2.57/kWh, which shows an increase of 6.20 % and decline of 23.05 % when compared with average MCP's for the month of April, 2020 and May, 2019, which were Rs 2.42/kWh and Rs 3.34/kWh, respectively. On PXIL, the average MCP during the month of May, 2020 is Rs 2.58/kWh, which shows a decline of 25.86 % when compared with average MCP for the month of May, 2019, which was Rs 3.48/kWh. Whereas, no transaction happened during April, 2020 in PXIL.

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 May, 2020 with that of April, 2020 and May, 2019 is given in Table- 1A & 1B:**

(a) May, 2020 vis- a -vis April, 2020

Daily MCP (Rs/kWh)	IEX			PXIL		
	May, 2020	April, 2020	% Change	May, 2020	April, 2020	% Change
Minimum	2.24	2.11	6.16	2.45	-	NA
Maximum	2.79	2.67	4.49	2.86	-	NA
Average	2.57	2.42	6.20	2.58	-	NA

- : No transaction happened

NA : Not Applicable

Table: 1A**(b) May, 2020 vis- a -vis May, 2019**

Daily MCP (Rs/kWh)	IEX			PXIL		
	May, 2020	May, 2019	% Change	May, 2020	May, 2019	% Change
Minimum	2.24	2.37	-5.49	2.45	1.90	28.95
Maximum	2.79	4.13	-32.45	2.86	4.07	-29.73
Average	2.57	3.34	-23.05	2.58	3.48	-25.86

Table: 1B

- 2.2. The maximum Area Clearing Price (ACP) of **Rs 5.00/kWh** in IEX was observed in all 13 regions during the time block **22:15-22:30 Hrs** on 27th May, 2020. As there was no congestion in transmission system, the MCP for this time-block was **Rs also 5.00/kWh**. However, the Daily MCP in IEX on pan India basis on 27th May, 2020 was **Rs 2.79/kWh**. Whereas, in PXIL, the maximum ACP of **Rs 5.50/kWh** was observed in all 13 regions during the time period **22:00-23:45 Hrs** on 28th May, 2020. As no congestion was there in transmission system, the MCP for this time period was also **Rs 5.50/kWh** and the Daily MCP in PXIL on 28th May, 2020 was **Rs 2.86/kWh**.
- 2.3. The minimum ACP of **Rs 1.10/kWh** in IEX was observed in all 13 regions during the time block **18:15-18:30 Hrs** on 17th May, 2020. As there was no congestion in transmission system, the MCP for this time-block was also **Rs 1.10/kWh**. However, the Daily MCP in IEX on pan India basis on 17th May, 2020 was **Rs 2.47/kWh**. Whereas, in PXIL, the minimum ACP of **Rs 1.30/kWh** was observed in all 13 regions during the time period **18:00-18:30 Hrs** on 27th May, 2020. As no congestion was there in transmission system, the MCP for this time period was also **Rs 1.30/kWh** and the Daily MCP in PXIL on 27th May, 2020 was **Rs 2.59/kWh**.

- 2.4. A comparison of the Minimum and Maximum Area Clearing Price (ACP) during the months of May, 2020 with that of April, 2020 and May, 2019 is given in Table- 2A & 2B:

a) May, 2020 vis- a -vis April, 2020

ACP (Rs/kWh)	IEX			PXIL		
	May, 2020	April, 2020	% Change	May, 2020	April, 2020	% Change
Minimum	1.10	0.70	57.14	1.30	-	NA
Maximum	5.00	3.87	29.20	5.50	-	NA

- : No transaction happened

NA: Not Applicable

Table: 2A

b) May, 2020 vis- a- vis May, 2019

ACP (Rs/kWh)	IEX			PXIL		
	May, 2020	May, 2019	% Change	May, 2020	May, 2019	% Change
Minimum	1.10	1.25	-12.00	1.30	1.90	-31.58
Maximum	5.00	7.50	-33.33	5.50	4.19	31.26

- : No transaction happened

NA : Not Applicable

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 May, 2020 with that of April, 2020 and May, 2019 is given in Table- 3A & 3B:

(a) May, 2020 vis- a- vis April, 2020

Final Scheduled Volume (MU)	IEX			PXIL		
	May, 2020	April, 2020	% Change	May, 2020	April, 2020	% Change
Minimum	140.41	92.47	51.84	2.61	-	NA
Maximum	220.37	151.23	45.72	6.21	-	NA
Average	179.80	123.07	46.10	4.45	-	NA

- : No transaction happened

NA: Not Applicable

Table: 3A

(b) May, 2020 vis- a- vis May, 2019

Final Scheduled Volume (MU)	IEX			PXIL		
	May, 2020	May, 2019	% Change	May, 2020	May, 2019	% Change
Minimum	140.41	95.95	46.34	2.61	0.02	12,950.00
Maximum	220.37	140.21	57.17	6.21	0.16	3,781.25
Average	179.80	121.69	47.75	4.45	0.11	3945.45

- : No transaction happened

NA: Not Applicable

Table: 3B

- 2.6. The total volume of electricity transacted in DAM on both the power exchanges during the period April, 2020 to May, 2020 is 9,288.01 MU. The same was 7,810.48 MU during the period April, 2019 to May, 2019, which shows an increase of 18.92 %.

3. TERM AHEAD MARKET (TAM)

- 3.1. The total volume of electricity transacted on both the power exchanges in Term Ahead Market in May, 2020 was **671.80 MU**, out of which, 387.42 MU (57.67 %) was transacted on IEX and 284.38 MU (42.33 %) was transacted on PXIL.
- 3.2. The total volume of electricity transacted on both the power exchanges in April, 2020 in Term Ahead Market was **587.18 MU**, out of which 395.88 MU (67.42 %) was transacted on IEX and, 191.30 MU (32.58 %) was transacted on PXIL.
- 3.3. Similarly, total volume of electricity transacted during May, 2019 in Term Ahead Market on both the power exchanges was **448.82 MU**, out of which, 326.72 MU (72.80%) was transacted on IEX and 122.10 MU (27.20%) was transacted on PXIL.
- 3.4. This shows an increase of **14.41 %** in TAM during May, 2020 as compared to April, 2020 and an increase of **49.68 %** as compared to May, 2019.
- 3.5. With respect to the total energy supplied during the month of May, 2020 in the country, the volume of electricity traded on the power exchanges in TAM represents 0.66 % of the total energy supplied. The same was 0.69 % in April, 2020 and 0.37 % in May, 2019.
- 3.6. The total volume of electricity transacted in TAM on both the power exchanges during the period April, 2020 to May, 2020 is 1,258.98 MU. The same was 1,076.41 MU during the period April, 2019 to May, 2019, which shows an increase of 16.96 %.
- 3.7. **The comparison of total volume of electricity transacted on both the power exchanges in Term Ahead Market (TAM) during May, 2020 with April, 2020 and May, 2019 is given in Table - 4A & 4B:**

(a) May, 2020 vis- a- vis April, 2020

Contract Type	IEX			PXIL		
	May, 2020	April, 2020	% Change	May, 2020	April, 2020	% Change
Intra Day (MU)	57.25	22.06	159.52	35.74	8.95	299.33
Day Ahead Contingency (MU)	25.85	2.43	963.79	0.14	-	NA
Daily/ Any Day (MU)	206.88	174.00	18.90	248.50	182.35	36.28
Weekly (MU)	97.44	197.40	-50.64	-	-	NA

- : No transaction happened

NA: Not Applicable

Table: 4A**(a) May, 2020 vis- a- vis May, 2019**

Contract Type	IEX			PXIL		
	May, 2020	May, 2019	% Change	May, 2020	May, 2019	% Change
Intra Day (MU)	57.25	67.37	-15.02	35.74	52.01	-31.28
Day Ahead Contingency (MU)	25.85	259.35	-90.03	0.14	-	NA
Daily/ Any Day (MU)	206.88	-	NA	248.50	70.09	254.54
Weekly (MU)	97.44	-	NA	-	-	NA

- : No transaction happened

NA: Not Applicable

Table: 4B**4. ANALYSIS OF MOVEMENT OF PRICES OBSERVED IN DAM DURING MAY, 2020**

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 May, 2020 month. The observations made are as under:

- 4.1. 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.
- 4.2. 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, total sell bid and wind 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 0.30. 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 May, 2020.

4.3. The same relationship is visible from the analysis carried out from the plot in **Figure 1**.

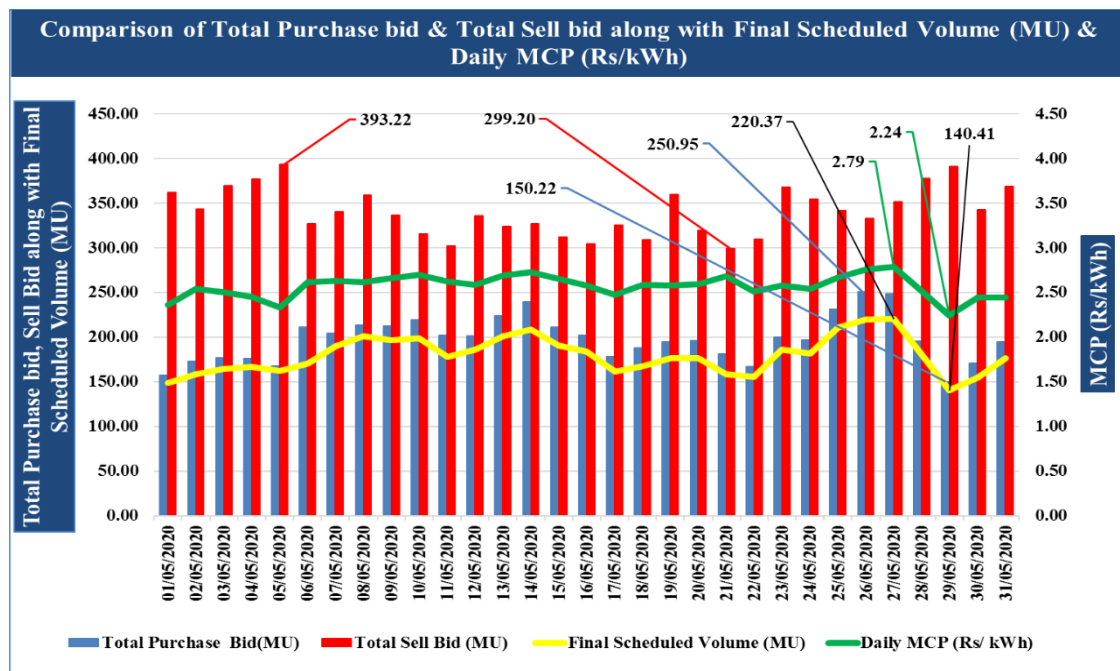


Figure -1

4.4. 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 [**Figure 1**]. However, in the month of May, 2020, it is observed that on first, second and fifth Sundays (i.e. 3rd, 10th and 31st May, 2020), FSV showed increasing trend in comparison to Saturdays (i.e. 2nd, 9th and 30th May, 2020). Whereas, on second Monday (i.e. 11th May, 2020), FSV showed decreasing trend in comparison to Sunday (i.e. 10th May, 2020). The detailed analysis on this is given at **Appendix-I**.

4.5. A comparison of maximum, minimum, daily, non-peak time, peak time MCP is shown in **Figure -2**. The same are also tabulated in **Annexure I**.

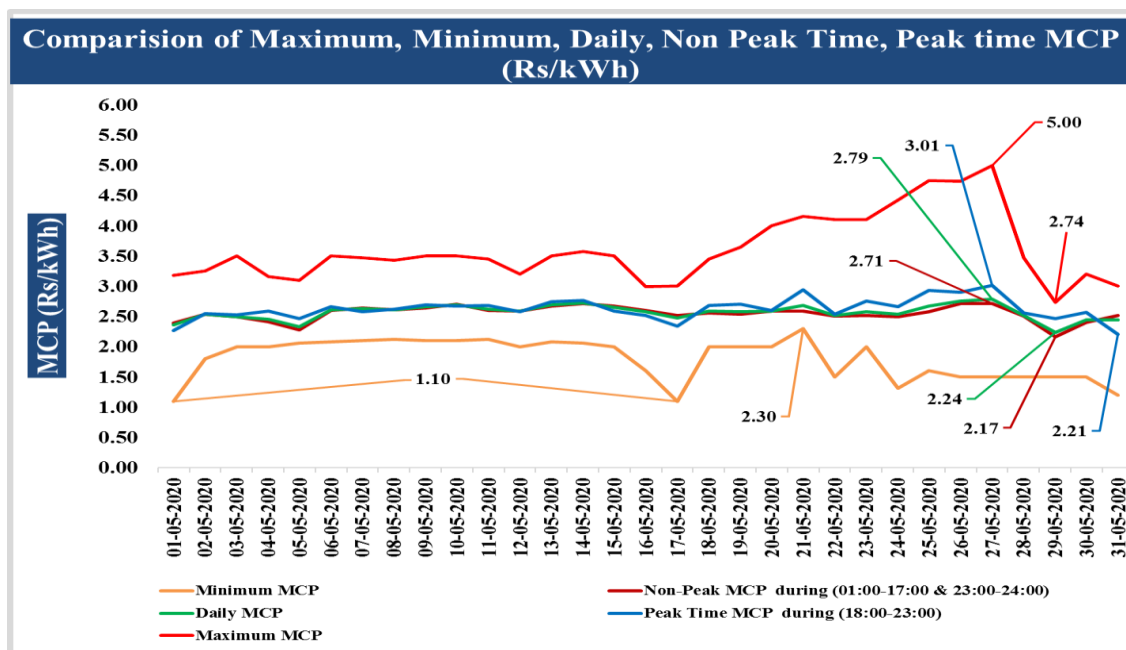


Figure -2

- 4.6. The Purchase Bids and the MCP discovered in each of the 15-minute time block during the month almost followed the same trend [**Annexure II**]. This is also corroborated with the outcome of regression analysis mentioned in at para 4.1 and 4.2 above.
- 4.7. On **15 days** during the month, the maximum FSV occurred during the **time period 22:15-23:00 [Annexure III]**.
- 4.8. On **28 days** during the month, the minimum FSV occurred during the **time period 18:00-18:45 [Annexure III]**.
- 4.9. On **29 days** during the month, the maximum MCP occurred during the **time period 22:15-23:15 [Annexure III]**.
- 4.10. On **28 days** during the month, the minimum MCP occurred during the **time period 18:00-19:00 [Annexure III]**.
- 4.11. The maximum demand met during the month of May, 2020 in the country occurred on **26th May, 2020 at 166.42 GW**, which is 25.33 % more than the maximum demand occurred during **April, 2020 [i.e. 132.78 GW on 30th April, 2020]** and is 8.87 % less than the maximum demand occurred during May, 2019 i.e. **[182.61 GW on 30th May, 2019]**.
- 4.12. One nation One Price was observed for all **31 days** in IEX and all **5 days** in PXIL (transaction happened in PXIL from 27th to 31st May, 2020) during the month of May, 2020, as no transmission congestion occurred in both the power exchanges. Also, in the month of April, 2020, no transmission congestion occurred in IEX, so, One Nation One Price observed for all **30 days**, whereas no transaction happened on PXIL. Similarly, in the month of May, 2019, transmission congestion occurred in IEX on **2 days** (i.e. 3rd and 22nd May, 2019) ,which resulted in non-clearance of **3.54 MU**, so, one nation one price was observed on **29 days** in IEX. Whereas, in PXIL, transaction happened on 11 days (from 1st to 11th May, 2019) and transmission congestion occurred on **1 day** (i.e. 3rd May, 2019), which resulted in non-clearance of **0.12 MU** on PXIL, so one nation one price was observed for **10 days** in PXIL in the month of May, 2019.
- 4.13. There was no real time curtailment in IEX and PXIL during the month of May, 2020. Also, there was no real time curtailment in IEX during April, 2020, whereas no transaction happened in PXIL during April, 2020. In the month of May, 2019, real time curtailment of **0.217 MU** occurred in IEX, whereas there was no real time curtailment in PXIL.

4.14. The **top 10 sellers** on the power exchanges during the month are **Odisha, Teesta 3, J&K, Himachal Pradesh, Jaypee Nigrie, Chhattisgarh, Uttar Pradesh, Raipur Energen, JITPL & Sembcorp Gayatri** and these constituted **58.05 %** of the market share. **[Annexure IV]**

4.15. The **top 10 purchasers** on the power exchanges during the month are **Maharashtra, Andhra Pradesh, Gujarat, Punjab, Telangana, Tamil Nadu, Bihar, Haryana, Uttar Pradesh & Rajasthan** and these constituted **91.63 %** of the market share. **[Annexure IV]**

-
- Source DAM and TAM 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

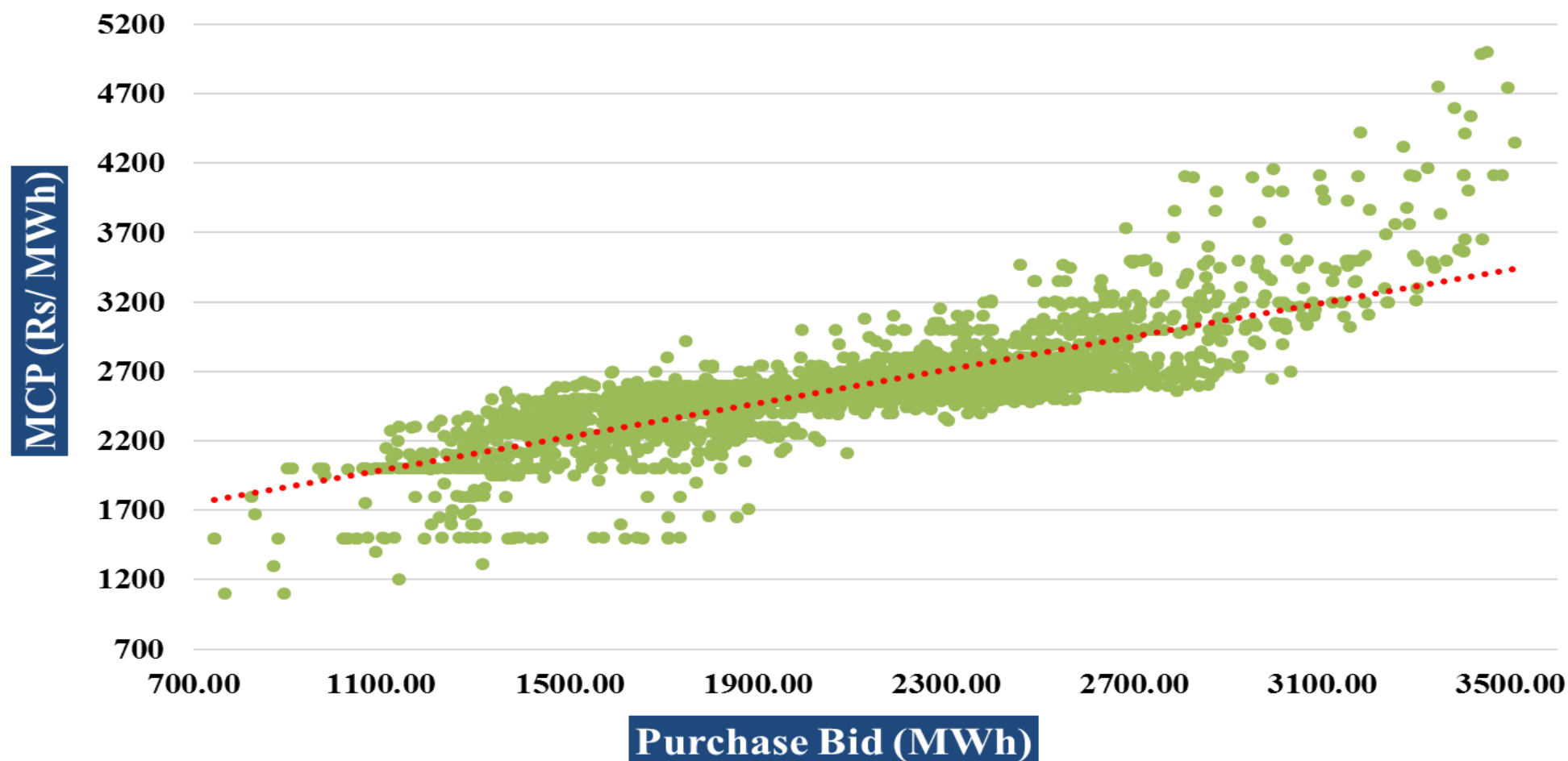
Annexure-I**Peak Time MCP, Non-Peak MCP, Maximum MCP, Minimum MCP, Average MCP and Final Scheduled Volume (MU)**

Date	MCP during (01:00-06:00, 23:00-24:00)	MCP during (07:00-10:00)	MCP during (11:00-17:00)	Peak Time MCP during (18:00-23:00)	Non-Peak MCP during (01:00-17:00 & 23:00-24:00)	Maximum MCP	Minimum MCP	Average MCP	Final Scheduled Volume (MU)
01/05/2020	2.72	2.28	2.14	2.27	2.40	3.18	1.10	2.36	149.11
02/05/2020	2.83	2.40	2.33	2.55	2.54	3.25	1.80	2.54	158.55
03/05/2020	2.74	2.47	2.26	2.52	2.49	3.50	1.99	2.50	164.18
04/05/2020	2.57	2.36	2.27	2.59	2.41	3.16	2.00	2.45	166.82
05/05/2020	2.38	2.21	2.22	2.47	2.28	3.10	2.06	2.33	162.05
06/05/2020	2.72	2.55	2.51	2.66	2.60	3.50	2.08	2.62	170.78
07/05/2020	2.81	2.58	2.52	2.58	2.64	3.47	2.10	2.63	190.17
08/05/2020	2.70	2.58	2.54	2.62	2.61	3.43	2.12	2.61	201.23
09/05/2020	2.73	2.61	2.59	2.70	2.65	3.50	2.11	2.66	196.33
10/05/2020	2.76	2.68	2.67	2.67	2.71	3.50	2.10	2.70	198.55
11/05/2020	2.63	2.60	2.58	2.68	2.60	3.45	2.12	2.62	177.90
12/05/2020	2.60	2.58	2.57	2.58	2.59	3.20	2.00	2.59	186.39
13/05/2020	2.78	2.54	2.63	2.75	2.67	3.50	2.08	2.69	201.31
14/05/2020	2.80	2.57	2.70	2.76	2.71	3.58	2.06	2.73	208.38
15/05/2020	2.70	2.61	2.68	2.59	2.67	3.51	2.00	2.65	190.82
16/05/2020	2.61	2.57	2.60	2.52	2.60	3.00	1.60	2.58	184.13
17/05/2020	2.55	2.49	2.48	2.34	2.51	3.01	1.10	2.47	161.58
18/05/2020	2.56	2.53	2.57	2.68	2.55	3.45	2.00	2.59	167.51
19/05/2020	2.57	2.50	2.53	2.70	2.54	3.65	2.00	2.58	176.69
20/05/2020	2.63	2.55	2.58	2.60	2.59	4.00	2.00	2.59	176.42
21/05/2020	2.70	2.52	2.53	2.95	2.59	4.16	2.30	2.68	158.83
22/05/2020	2.53	2.48	2.50	2.54	2.51	4.11	1.50	2.51	155.66
23/05/2020	2.59	2.38	2.52	2.75	2.52	4.11	2.00	2.58	185.81
24/05/2020	2.56	2.48	2.45	2.66	2.50	4.43	1.31	2.54	181.28
25/05/2020	2.69	2.49	2.53	2.93	2.58	4.75	1.60	2.67	210.68
26/05/2020	2.91	2.55	2.60	2.90	2.71	4.74	1.50	2.76	219.79
27/05/2020	2.89	2.50	2.65	3.01	2.71	5.00	1.50	2.79	220.37
28/05/2020	2.57	2.07	2.69	2.55	2.51	3.47	1.50	2.52	180.87
29/05/2020	2.10	1.81	2.44	2.46	2.17	2.74	1.50	2.24	140.41
30/05/2020	2.45	1.99	2.59	2.57	2.41	3.20	1.50	2.45	154.95
31/05/2020	2.58	2.41	2.52	2.21	2.52	3.00	1.20	2.44	176.17
Maximum	2.91	2.68	2.70	3.01	2.71	5.00	2.30	2.79	220.37
Minimum	2.10	1.81	2.14	2.21	2.17	2.74	1.10	2.24	140.41
Average	2.64	2.45	2.52	2.63	2.55	3.60	1.80	2.57	179.80

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 May, 2020



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

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

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
01/05/2020	22:45 - 23:00	2.29	22:45 - 23:00	3.18	18:00 - 18:15	0.74	18:15 - 18:30	1.10
02/05/2020	00:15 - 00:30	2.39	23:00 - 23:15	3.25	18:15 - 18:30	0.79	18:15 - 18:30	1.80
03/05/2020	22:45 - 23:00	2.36	22:45 - 23:00	3.50	18:00 - 18:15	1.00	18:30 - 18:45	1.99
04/05/2020	22:45 - 23:00	2.39	22:15 - 22:30	3.16	10:30 - 10:45	1.15	10:30 - 10:45	2.00
05/05/2020	22:30 - 22:45	2.15	22:30 - 22:45	3.10	18:00 - 18:15	1.16	11:00 - 11:15	2.06
06/05/2020	22:30 - 22:45	2.41	22:30 - 22:45	3.50	18:00 - 18:15	1.17	18:00 - 18:15	2.08
07/05/2020	06:30 - 06:45	2.67	22:45 - 23:00	3.47	18:00 - 18:15	1.25	18:00 - 18:15	2.10
08/05/2020	06:15 - 06:30	2.65	22:30 - 22:45	3.43	18:00 - 18:15	1.45	18:00 - 18:15	2.12
09/05/2020	06:30 - 06:45	2.72	22:45 - 23:00	3.50	18:00 - 18:15	1.29	18:00 - 18:15	2.11
10/05/2020	07:00 - 07:15	2.66	22:45 - 23:00	3.50	18:00 - 18:15	1.29	18:00 - 18:15	2.10
11/05/2020	22:45 - 23:00	2.39	22:45 - 23:00	3.45	18:00 - 18:15	1.26	18:00 - 18:15	2.12
12/05/2020	07:00 - 07:15	2.47	22:30 - 22:45	3.20	18:00 - 18:15	1.33	18:00 - 18:15	2.00
13/05/2020	22:30 - 22:45	2.52	22:30 - 22:45	3.50	18:15 - 18:30	1.44	18:00 - 18:15	2.08
14/05/2020	22:30 - 22:45	2.53	22:30 - 22:45	3.58	18:15 - 18:30	1.45	18:00 - 18:15	2.06
15/05/2020	06:30 - 06:45	2.40	22:30 - 22:45	3.51	18:15 - 18:30	1.15	18:30 - 18:45	2.00
16/05/2020	15:15 - 15:30	2.43	22:30 - 22:45	3.00	18:15 - 18:30	1.20	18:15 - 18:30	1.60
17/05/2020	22:15 - 22:30	2.36	22:15 - 22:30	3.01	18:00 - 18:15	0.87	18:15 - 18:30	1.10
18/05/2020	22:30 - 22:45	2.46	22:15 - 22:30	3.45	18:15 - 18:30	0.97	18:00 - 18:15	2.00
19/05/2020	22:30 - 22:45	2.59	22:45 - 23:00	3.65	18:30 - 18:45	1.22	18:15 - 18:30	2.00
20/05/2020	15:15 - 15:30	2.33	22:30 - 22:45	4.00	18:15 - 18:30	1.18	18:30 - 18:45	2.00
21/05/2020	22:30 - 22:45	2.06	22:45 - 23:00	4.16	18:15 - 18:30	1.22	18:30 - 18:45	2.30
22/05/2020	22:30 - 22:45	2.26	22:30 - 22:45	4.11	18:15 - 18:30	1.02	18:15 - 18:30	1.50
23/05/2020	22:30 - 22:45	2.65	22:30 - 22:45	4.11	18:15 - 18:30	1.36	18:15 - 18:30	2.00
24/05/2020	22:45 - 23:00	2.56	22:30 - 22:45	4.43	18:15 - 18:30	1.28	18:15 - 18:30	1.31
25/05/2020	00:00 - 00:15	2.58	22:30 - 22:45	4.75	18:30 - 18:45	1.57	18:30 - 18:45	1.60
26/05/2020	16:30 - 16:45	2.64	22:15 - 22:30	4.74	18:30 - 18:45	1.60	18:00 - 18:15	1.50
27/05/2020	16:30 - 16:45	2.72	22:15 - 22:30	5.00	18:30 - 18:45	1.62	18:15 - 18:30	1.50
28/05/2020	16:30 - 16:45	2.55	21:45 - 22:00	3.47	18:15 - 18:30	1.36	18:45 - 19:00	1.50
29/05/2020	16:15 - 16:30	2.09	21:45 - 22:00	2.74	07:30 - 07:45	1.02	07:15 - 07:30	1.50
30/05/2020	15:15 - 15:30	2.25	22:30 - 22:45	3.20	18:15 - 18:30	1.20	18:15 - 18:30	1.50
31/05/2020	14:45 - 15:00	2.40	22:30 - 22:45	3.00	22:15 - 22:30	1.06	18:00 - 18:15	1.20

MCP: Market Clearing Price (Rs/kWh)

FSV: Final Scheduled Volume (MU)

Annexure-IV**Top Ten Entities (Sellers and Purchasers) during the month of May, 2020**

Entity Name	Sell		Entity Name	Purchase	
	(MU)	Percent		(MU)	Percent (%)
Odisha	651.27	11.64%	Maharashtra	1366.23	24.41%
Teesta -3	469.01	8.38%	Andhra Pradesh	1118.53	19.99%
J&K	386.05	6.90%	Gujarat	818.80	14.63%
Himachal Pradesh	382.29	6.83%	Punjab	788.69	14.09%
Jaypee Nigrie	249.53	4.46%	Telangana	294.50	5.26%
Chhattisgarh	243.13	4.34%	Tamil Nadu	197.93	3.54%
Uttar Pradesh	238.16	4.26%	Bihar	154.64	2.76%
Raipur Energen	235.58	4.21%	Haryana	136.88	2.45%
JITPL	234.18	4.18%	Uttar Pradesh	134.26	2.40%
Sembcorp Gayatri	159.17	2.84%	Rajasthan	117.00	2.09%
Total	3248.38	58.05%	Total	5127.47	91.63%
Total Volume in PXs	5595.97		Total Volume in PXs	5595.97	

Appendix-I**Analysis for change in trend of Final Scheduled Volume on 1st, 2nd & 5th Sunday and on 2nd Monday of May, 2020 (i.e. on 3rd, 10th, 11th and 31st May, 2020)**

During the month of May, 2020, it is observed that on first, second and fifth Sundays (i.e. 3rd, 10th and 31st May, 2020), FSV showed increasing trend in comparison to Saturdays (i.e. 2nd, 9th and 30th May, 2020). Whereas, on second Monday (i.e. 11th May, 2020) FSV showed decreasing trend in comparison to Sunday (i.e. 10th May, 2020). On analysis of this variation in trends of FSV on above days during May, 2020, it has been observed as under:

- (i) On Sunday (3rd May, 2020), there was increase in purchase on power exchange by some of the States in comparison to Saturday (2nd May, 2020) by **18.451 MU** [i.e. Andhra Pradesh (10.080 MU), Punjab (3.500 MU), Maharashtra (2.430 MU), Rajasthan (1.094 MU), etc.]. There was also decrease in purchase on power exchange by some of the States by **12.826 MU** [i.e. Gujarat (6.860 MU), Telangana (4.561), Haryana (1.144), etc.] This resulted in an overall increase in FSV by **5.625 MU** on Sunday (3rd May, 2020).
- (ii) Similarly, on Sunday (10th May, 2020) there was increase in purchase on power exchange by some of the States and entities in comparison to Saturday (9th May, 2020) by **17.7705 MU** [i.e. Andhra Pradesh (5.281 MU), Uttar Pradesh (4.264 MU), Rajasthan (2.049 MU), Bihar (1.854 MU), etc.]. There was also decrease in purchase on power exchange by some of the States by **15.551 MU** [i.e. Punjab (5.500), Gujarat (3.441), Telangana (3.167 MU), Maharashtra (2.353 MU), etc.] This resulted in an overall increase in FSV by **2.219 MU** on Sunday (10th May, 2020).
- (iii) Further, on Monday (11th May, 2020), there was increase in purchase on power exchange by some of the States in comparison to Sunday (10th May, 2020) by **17.599 MU** [i.e. Gujarat (8.242 MU), Tamil Nadu (5.207 MU), Bihar (2.551 MU), Assam (0.610 MU), etc.]. There was also marked decrease in purchase on power exchange by some of the States and entities by **38.253 MU** [i.e. Punjab (21.250 MU), Telangana (5.713 MU), Andhra Pradesh (4.223 MU), Maharashtra (2.330 MU), Rajasthan (2.116 MU), etc.] This resulted in an overall decrease in FSV by **20.654 MU** on Monday (11th May, 2020).
- (iv) On Sunday (31st May, 2020) also, there was increase in purchase on power exchange by some of the States in comparison to Saturday (30th May, 2020) by **34.187 MU** [i.e. Andhra Pradesh (15.068 MU), Gujarat (6.462 MU), Punjab (3.950 MU), Maharashtra (3.656 MU), etc.]. There was also decrease in purchase on power exchange by some of the States by **12.968 MU** [i.e. Telangana (6.987), Tamil Nadu (2.902), Delhi (0.958 MU), etc.] This resulted in an overall increase in FSV by **21.220 MU** on Sunday (31st May, 2020).

Definitions/ Terminologies used in the Report

1. **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.
2. **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.

3. **Daily MCP** is the average of MCP of all 96 Time Blocks of the day during which transaction happened.
4. **Average MCP** is the average of daily MCP of the days during the month on which transaction happened.
5. **Final Scheduled Volume** is the total of scheduled volume of all 96 time blocks in a day during the month in which transaction happened.
6. **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.
7. **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.
8. **Energy Supplied** is the total energy (MU) available at the States' periphery.
9. **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.