



सत्यमेव जयते

जनवरी, 2021 मासिक मार्केट मॉनिटरिंग रिपोर्ट

Monthly Market Monitoring Report

January, 2021



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विद्युत मंत्रालय/ Ministry of Power

केन्द्रीय विद्युत प्राधिकरण/ Central Electricity Authority

आर. ए. प्रभाग/ Regulatory Affairs Division

मार्केट मॉनिटरिंग सेल /Market Monitoring Cell

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REPORT FOR MONTH: JANUARY, 2021

OVERVIEW OF ELECTRICITY TRANSACTIONS ON POWEREXCHANGES 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 January, 2021 was **5,591.70 MU**. The total energy supplied in the country during the month of January, 2021 was **(109,767 MU)**. Thus, the volume of electricity transacted on the power exchanges in DAM was **5.09%** of the total energy supplied in the country. The total volume of electricity transacted in DAM during December, 2020 was **5611.00 MU** which was **5.31%** of the total energy supplied [**105,623 MU**] in the country during December, 2020. Similarly, the total volume of electricity transacted in DAM during January, 2020 was **4,791.88 MU** which was **4.56%** of the total energy supplied [**105,158 MU**] in the country during January, 2020.
- 1.2. The volume of electricity transacted on IEX and PXIL during January, 2021 were **5,584.07 MU** and **7.63 MU**, respectively, which means that the total volume transacted on IEX was **99.86 %** of the total volume on power exchanges. The volume of electricity transacted on IEX and PXIL during December, 2020 were **5,605.58 MU** and **5.42 MU**, respectively, which means that the total volume transacted on IEX was **99.90 %** of the total volume on power exchanges. Also, the total volume of electricity transacted during January, 2020 on IEX and PXIL was **4,790.96 MU** and **0.92 MU**, respectively, which means that the total volume transacted on IEX was **99.98%** of the total volume on the power exchanges.
- 1.3. The Average Market Clearing Price (MCP) on IEX during the month of January, 2021 was **Rs 3.18/kWh**, which shows an increase of **12.37 %** and **11.19%** when compared with average MCP's for the month of December, 2020 and January, 2020, which were **Rs 2.83/kWh** and **Rs 2.86/kWh**, respectively. On PXIL, the average MCP during the month of January, 2021 was **Rs 3.85/kWh**, which shows an increase of **18.46%** and **35.09%**, when compared with average MCP's for the month of December, 2020 and January, 2020, which were **Rs 3.25/kWh** and **Rs 2.85/kWh**, respectively.

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

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

(a) January, 2021 vis- a -vis December, 2020

| Daily MCP (Rs/kWh) | IEX | | | PXIL | | |
|-----------------------|------------------|-------------------|-------------|------------------|-------------------|-------------|
| | January, 2021 | December, 2020 | % Change | January, 2021 | December, 2020 | % Change |
| Minimum | 2.66 | 2.54 | 4.72 | 3.19 | 2.40 | 32.92 |
| Maximum | 3.85 | 3.25 | 18.46 | 4.71 | 4.55 | 3.52 |
| Average | 3.18 | 2.83 | 12.37 | 3.85 | 3.25 | 18.46 |

Table: 1A

(b) January, 2021 vis- a –vis January, 2020

| Daily MCP (Rs/kWh) | IEX | | | PXIL | | |
|-----------------------|------------------|------------------|-------------|------------------|------------------|-------------|
| | January, 2021 | January, 2020 | % Change | January, 2021 | January, 2020 | % Change |
| Minimum | 2.66 | 2.55 | 4.31 | 3.19 | 2.64 | 20.83 |
| Maximum | 3.85 | 3.08 | 25.00 | 4.71 | 3.35 | 40.60 |
| Average | 3.18 | 2.86 | 11.19 | 3.85 | 2.85 | 35.09 |

Table: 1B

- 2.2. The maximum Area Clearing Price (ACP) of **Rs 8.00/kWh** in IEX was observed in all 13 regions during the time block **09:15-09:30 Hrs** on 23rd January, 2021. As there was no congestion in transmission system, the MCP for this time-block was also **Rs 8.00/kWh**. However, the Daily MCP in IEX on pan India basis on 23rd January, 2021 was **Rs 3.61 /kWh**. Whereas, in PXIL, the maximum ACP of **Rs 6.71/kWh** was observed in all 13 regions during the time periods from **7:30-10:00 Hrs** on 25th January, 2021 i.e. ten consecutive time blocks starting **07:30-07:45 Hrs**. As there was no congestion in transmission system, the MCP for above time blocks was also **Rs 6.71/kWh**. However, the Daily MCP in PXIL on 25th January, 2021 was **Rs 4.26/kWh**.
- 2.3. The minimum ACP of **Rs 1.55/kWh** in IEX was observed in all 13 regions during the time block **03:45-4:00 Hrs** on 8th January, 2021. As there was no congestion in transmission system, the MCP for this time-block was also **Rs 1.55/kWh**. However, the Daily MCP in IEX on pan India basis on 8th January, 2021 was **Rs 2.75/kWh**. Whereas, in PXIL, the minimum ACP of **Rs 1.51/kWh** was observed in all 13 regions on 27th January, 2021 (for time period **21:45-22:00Hrs** during January, 2021). As no congestion was there in transmission system, the MCP for the above time blocks was also **Rs 1.51/kWh**. However, the Daily MCP in PXIL on 27th January, 2021 were **Rs 3.85/kWh, respectively**.
- 2.4. A comparison of the Minimum and Maximum Area Clearing Price (ACP) during the months of January, 2021 with that of December, 2020 and January, 2020 is given in Table-2A&2B:

(a) January, 2021 vis- a -vis December, 2020

| ACP (Rs/kWh) | IEX | | | PXIL | | |
|-----------------|------------------|-------------------|-------------|------------------|--------------------|-------------|
| | January, 2021 | December, 2020 | % Change | January, 2021 | Decemb er, 2020 | % Change |
| Minimum | 1.55 | 1.57 | -1.27 | 1.51 | 2.00 | -24.50 |
| Maximum | 8.00 | 6.05 | 32.23 | 6.71 | 5.99 | 12.02 |

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

| ACP (Rs/kWh) | IEX | | | PXIL | | |
|-----------------|------------------|------------------|-------------|------------------|------------------|-------------|
| | January, 2021 | January, 2020 | % Change | January, 2021 | January, 2020 | % Change |
| Minimum | 1.55 | 0.99 | 56.57 | 1.51 | 2.49 | -39.36 |
| Maximum | 8.00 | 5.00 | 60.00 | 6.71 | 3.35 | 100.30 |

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

(a) January, 2021 vis- a- vis December, 2020

| Final Scheduled Volume (MU) | IEX | | | PXIL | | |
|-----------------------------------|------------------|-------------------|-------------|------------------|-------------------|-------------|
| | January, 2021 | December, 2020 | % Change | January, 2021 | December, 2020 | % Change |
| Minimum | 156.75 | 143.02 | 9.60 | 0.02 | 0.02 | 0.00 |
| Maximum | 199.03 | 207.05 | -3.87 | 1.22 | 0.38 | 221.05 |
| Average | 180.13 | 180.83 | -0.39 | 0.40 | 0.18 | 122.22 |

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

| Final Scheduled Volume (MU) | IEX | | | PXIL | | |
|--------------------------------------|------------------|------------------|-------------|------------------|------------------|-------------|
| | January, 2021 | January, 2020 | % Change | January, 2021 | January, 2020 | % Change |
| Minimum | 156.75 | 121.03 | 29.51 | 0.02 | 0.02 | 0.00 |
| Maximum | 199.03 | 182.11 | 9.29 | 1.22 | 0.09 | 1,255.56 |
| Average | 180.13 | 154.55 | 16.55 | 0.40 | 0.04 | 900.00 |

Table: 3B

- 2.6. The total volume of electricity transacted in DAM on both the power exchanges during the period April, 2020 to January, 2021 is **48,965.62 MU**. The same was **40,899.35 MU** during the period April, 2019 to January, 2020, which shows an **increase of 19.72 %**.

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 January, 2021 was **983.44 MU**, out of which, **324.31 MU (32.98 %)** was transacted on IEX and **659.13 MU (67.02%)** 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 December, 2020 was **1295.67 MU**, out of which, **371.59 MU (28.68 %)** was transacted on IEX and **924.08 MU (71.32%)** was transacted on PXIL.
- 3.3. Similarly, total volume of electricity transacted during January, 2020 in Term Ahead Market on trade date basis in both the power exchanges was **287.78 MU**, out of which, **270.35 MU (93.94 %)** was transacted on IEX and **17.43MU (6.06 %)** was transacted on PXIL.
- 3.4. With respect to the total energy supplied during the month of January, 2021 in the country, the volume of electricity traded on the power exchanges in TAM represents **0.90 %** of the total energy supplied. The same was **1.23 %** in December, 2020 and **0.27 %** in January, 2020.
- 3.5. The total volume of electricity transacted in TAM **on trade date basis** on both the power exchanges cumulatively during the period April, 2020 to January, 2021 is **7,009.38 MU**, which shows an increase of 3.65 % as compared to **6,762.77 MU** during the period April, 2019 to January, 2020.
- 3.6. In the month of January, 2021, there was transmission congestion in IEX of **215.60 MU** in Daily/ Any day contract, whereas there was no transmission congestion in PXIL during the month of January, 2021.
- 3.7. **The comparison of total volume of electricity transacted on both the power exchanges in Term Ahead Market (TAM) during January, 2021 with December, 2020 and January, 2020 is given in Table- 4A&4B:**

(a) January, 2021 vis- a- vis December, 2020 (on trade Date Basis)

| Contract Type | IEX | | | PXIL | | |
|----------------------------------|---------------|----------------|----------|---------------|----------------|----------|
| | January, 2021 | December, 2020 | % Change | January, 2021 | December, 2020 | % Change |
| Intra Day (MU) | 1.76 | 5.04 | -65.08 | 33.35 | 18.70 | 78.34 |
| Day Ahead Contingency(MU) | 50.53 | 14.69 | 243.98 | - | | |

| | | | | | | |
|----------------------------|----------------|--------|--------|----------------|--------|--------|
| Daily/ Any Day (MU) | 272.02 | 351.86 | -22.69 | 625.78 | 905.38 | -30.88 |
| Weekly (MU) | No Transaction | | | No Transaction | | |

Table: 4A**(a) January, 2021 vis- a- vis January, 2020 (on trade Date Basis)**

| Contract Type | IEX | | | PXIL | | |
|------------------------------|----------------------|----------------------|-----------------|----------------------|----------------------|-----------------|
| | January, 2021 | January, 2020 | % Change | January, 2021 | January, 2020 | % Change |
| Intra Day (MU) | 1.76 | 44.66 | -96.06 | 33.35 | 12.90 | 158.53 |
| Day Ahead Contingency | 50.53 | 117.68 | -57.06 | - | | |
| Daily/ Any Day (MU) | 272.02 | 108.00 | 151.87 | 625.78 | 4.53 | 13,714.13 |
| Weekly (MU) | - | - | NA | No Transaction | | |

Table: 4B

NA- Not Applicable

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

- 3.8.** The total volume of electricity transacted on both the power exchanges in Term Ahead Market on delivery date basis in January, 2021 was **1150.18 MU**, out of which, **524.08 MU (45.57 %)** was transacted on IEX and **626.10 MU (54.43%)** was transacted on PXIL.
- 3.9.** The total volume of electricity transacted on both the power exchanges in Term Ahead Market on delivery date basis in December, 2020 was **1365.45 MU**, out of which, **435.72 MU (31.91 %)** was transacted on IEX and **929.73 MU (68.09%)** was transacted on PXIL.
- 3.10.** Similarly, total volume of electricity transacted during January, 2020 in Term Ahead Market on delivery date basis in both the power exchanges was **300.14 MU**, out of which, **271.49 MU (90.45 %)** was transacted on IEX and **28.65 MU (9.55 %)** was transacted on PXIL.
- 3.11.** With respect to the total energy supplied during the month of January, 2021 in the country, the volume of electricity traded on the power exchanges in TAM represents **1.05 %** of the total energy supplied. The same was **1.29 %** in December, 2020 and **0.29%** in January, 2020.
- 3.12.** The total volume of electricity transacted in TAM **on delivery date basis** on both the power exchanges cumulatively during the period April, 2020 to January, 2021 is **7,197.65 MU**, which shows an increase of 7.47 % as compared to **6,697.13 MU** during the period April, 2019 to January, 2020.
- 3.13.** In the month of January, 2021, there was real time curtailment in IEX of **1.84 MU** in Daily/ Anyday contracts, whereas in PXIL, there was real time curtailment of **46.59 MU** in Daily/ Any day contract during January, 2021
- 3.14.** The comparison of total volume of electricity transacted in both the power exchanges in Term Ahead Market (TAM) on delivery date basis during January, 2021 with December, 2020 and January, 2020 is given in Table – 4C&4D:

(b) January, 2021 vis- a- vis December, 2020 (on Delivery Date Basis)

| Contract Type | IEX | | | PXIL | | |
|----------------------------------|---------------|----------------|----------|----------------|----------------|----------|
| | January, 2021 | December, 2020 | % Change | January, 2021 | December, 2020 | % Change |
| Intra Day (MU) | 1.76 | 5.04 | -65.08 | 33.35 | 18.70 | 78.34 |
| Day Ahead Contingency(MU) | 48.30 | 14.47 | 233.79 | No Transaction | | |
| Daily/ Any Day (MU) | 474.02 | 416.21 | 13.89 | 592.75 | 911.03 | -34.94 |
| Weekly (MU) | - | - | NA | No Transaction | | |

Table: 4C

NA- Not Applicable

(b) January, 2021 vis- a- vis January, 2020 (on Delivery Date Basis)

| Contract Type | IEX | | | PXIL | | |
|----------------------------------|---------------|---------------|----------|----------------|---------------|----------|
| | January, 2021 | January, 2020 | % Change | January, 2021 | January, 2020 | % Change |
| Intra Day (MU) | 1.76 | 44.46 | -96.04 | 33.35 | 13.03 | 155.95 |
| Day Ahead Contingency MU) | 48.30 | 117.05 | -58.74 | No Transaction | | |
| Daily/ Any Day (MU) | 474.02 | 98.40 | 381.73 | 592.75 | 15.62 | 3,694.81 |
| Weekly (MU) | - | 11.58 | NA | No Transaction | | |

Table: 4D

NA- Not Applicable

4. REAL TIME MARKET (RTM)

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

(i) Final Scheduled Volume:

| Final Scheduled Volume (MU) | IEX | | | PXIL | | |
|-----------------------------|---------------|----------------|----------|----------------|----------------|----------|
| | January, 2021 | December, 2020 | % Change | January, 2021 | December, 2020 | % Change |
| Total | 1,233.31 | 1,129.09 | 9.23 | No Transaction | | |
| Minimum | 21.41 | 24.09 | -11.12 | No Transaction | | |
| Maximum | 55.75 | 51.34 | 8.59 | No Transaction | | |
| Average | 39.78 | 36.42 | 9.23 | No Transaction | | |

Table-5A**(ii) Daily Market Clearing Price (MCP):**

| Daily MCP (Rs/kWh) | IEX | | | PXIL | | |
|--------------------|---------------|----------------|----------|----------------|----------------|----------|
| | January, 2021 | December, 2020 | % Change | January, 2021 | December, 2020 | % Change |
| Minimum | 2.32 | 2.40 | -3.33 | No Transaction | | |
| Maximum | 3.99 | 3.76 | 6.12 | No Transaction | | |

| | | | | |
|----------------|------|------|------|----------------|
| Average | 3.02 | 2.94 | 2.72 | No Transaction |
|----------------|------|------|------|----------------|

Table-5B**(iii) Area Clearing Price (ACP):**

| ACP (Rs/kWh) | IEX | | | PXIL | | |
|-----------------|------------------|-------------------|-------------|------------------|--------------------|-------------|
| | January, 2021 | December, 2020 | % Change | January, 2021 | December , 2020 | % Change |
| Minimum | 0.40 | 0.90 | -55.56 | No Transaction | | |
| Maximum | 9.00 | 15.00 | -40.00 | No Transaction | | |

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. The total volume of electricity transacted in Solar Energy Segment in GTAM in Day Ahead Contingency, Intraday, Daily/ Anyday and Weekly contracts during January, 2021 on trade date basis and delivery date basis has been shown in Tables 6A to 6D.

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 during January, 2021 and its comparison with December, 2020 has been shown in Table 6A & 6B below.

(i) Final Scheduled Volume:

| Solar Energy Contract | Period | Final Scheduled Volume MU) | | | |
|----------------------------------|-----------------------|----------------------------|---------|---------|---------|
| | | Total | Minimum | Maximum | Average |
| Day Ahead Contingency | January, 2021 | 22.23 | 0.01 | 1.56 | 0.72 |
| | December, 2020 | 61.61 | 0.05 | 6.69 | 2.20 |
| | % Change | -63.92 | -80.00 | -76.68 | -67.27 |
| Intraday | January, 2021 | - | - | - | - |
| | December, 2020 | 0.32 | 0.16 | 0.16 | 0.16 |
| | % Change | NA | NA | NA | NA |
| Daily- Anyday | January, 2021 | 1.80 | 1.80 | 1.80 | 1.80 |
| | December, 2020 | - | - | - | - |
| | % Change | NA | NA | NA | NA |
| Weekly | January, 2021 | - | - | - | - |
| | December, 2020 | 5.95 | 2.45 | 3.50 | 2.98 |
| | % Change | NA | NA | NA | NA |

Table-6A

NA- Not Applicable

(ii) Daily Market Clearing Price (MCP):

| Solar Energy Contract | Period | Prices (Rs/kWh) | | |
|----------------------------------|------------------------|-----------------|---------|---------|
| | | Minimum | Maximum | Average |
| Day Ahead Contingency | January , 2021 | 3.66 | 5.00 | 4.21 |
| | December , 2020 | 3.41 | 5.15 | 4.00 |
| | %Change | 7.33 | -2.91 | 5.25 |

| | | | | |
|---------------------|------------------------|------|------|------|
| Intraday | January , 2021 | - | - | - |
| | December , 2020 | 3.86 | 4.00 | 3.93 |
| | %Change | NA | NA | NA |
| Weekly | January , 2021 | - | - | - |
| | December , 2020 | 3.70 | 3.70 | 3.70 |
| | % Change | NA | NA | NA |
| Daily-Anyday | January , 2021 | 4.50 | 4.50 | 4.50 |
| | December , 2020 | - | - | - |
| | % Change | NA | NA | NA |

Table-6B

NA- Not Applicable

On Delivery date basis

The Final Scheduled Volume and the Price of electricity transacted in GTAM in IEX during January, 2021 and its comparison with December, 2020 has been shown in Table 6C & 6D below.

(i) Final Scheduled Volume:

| Solar Energy Contract | Period | Final Scheduled Volume MU) | | | |
|------------------------------|-----------------------|-----------------------------------|----------------|----------------|----------------|
| | | Total | Minimum | Maximum | Average |
| Day Ahead Contingency | January, 2021 | 21.06 | 0.01 | 1.56 | 0.68 |
| | December, 2020 | 68.54 | 0.05 | 7.09 | 2.45 |
| | % Change | -69.27 | -80.00 | -78.00 | -72.24 |
| Intraday | January, 2021 | - | - | - | - |
| | December, 2020 | 0.32 | 0.16 | 0.16 | 0.16 |
| | % Change | NA | NA | NA | NA |
| Weekly | January, 2021 | - | - | - | - |
| | December, 2020 | 5.95 | 0.85 | 0.85 | 0.85 |
| | % Change | NA | NA | NA | NA |
| Daily-Anyday | January, 2021 | 1.40 | 0.20 | 0.20 | 0.20 |
| | December, 2020 | - | - | - | - |
| | % Change | NA | NA | NA | NA |

Table-6C

NA- Not Applicable

(ii) Daily Market Clearing Price (MCP):

| Solar Energy Contract | Period | Prices (Rs/kWh) | | |
|------------------------------|------------------------|------------------------|----------------|----------------|
| | | Minimum | Maximum | Average |
| Day Ahead Contingency | January , 2021 | 3.66 | 5.15 | 4.24 |
| | December , 2020 | 3.41 | 5.00 | 3.94 |
| | %Change | 7.33 | 3.00 | 7.61 |
| Intraday | January , 2021 | - | - | - |
| | December , 2020 | 3.86 | 4.00 | 3.93 |
| | %Change | NA | NA | NA |

| Weekly | January , 2021 | No Transaction | | |
|--------------|-----------------|----------------|------|------|
| | December , 2020 | 3.70 | 3.70 | 3.70 |
| | % Change | NA | NA | NA |
| Daily/Anyday | January , 2021 | 4.50 | 4.50 | 4.50 |
| | December , 2020 | No Transaction | | |
| | %Change | NA | NA | NA |

Table-6D

NA- Not Applicable

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

The total volume of electricity transacted in non-Solar Energy Segment in GTAM in Day Ahead Contingency, Intraday, Daily/ Anyday and Weekly contracts during January, 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 during January, 2021 and its comparison with December, 2020 has been shown in Table 6E & 6F below.

(iii) Final Scheduled Volume:

| Non-Solar Energy Contract | Period | Final Scheduled Volume MU) | | | |
|---------------------------|----------------|----------------------------|---------|---------|---------|
| | | Total | Minimum | Maximum | Average |
| Day Ahead Contingency | January, 2021 | 50.70 | 0.30 | 4.69 | 1.64 |
| | December, 2020 | 21.00 | 0.38 | 1.51 | 0.68 |
| | % Change | 141.43 | -21.05 | 210.60 | 141.18 |
| Intraday | January, 2021 | 0.38 | 0.38 | 0.38 | 0.38 |
| | December, 2020 | 0.20 | 0.02 | 0.18 | 0.10 |
| | % Change | 90.00 | 1800.00 | 111.11 | 280.00 |
| Daily-Anyday | January, 2021 | 0.50 | 0.50 | 0.50 | 0.50 |
| | December, 2020 | No Transaction | | | |
| | % Change | NA | NA | NA | NA |
| Weekly | January, 2021 | 16.80 | 16.80 | 16.80 | 16.80 |
| | December, 2020 | 0.70 | 0.70 | 0.70 | 0.70 |
| | % Change | 2300.00 | 2300.00 | 2300.00 | 2300.00 |

Table-6E

NA- Not Applicable

(iv) Daily Market Clearing Price (MCP) (On Trade date basis):

| Non-Solar Energy Contract | Period | Prices (Rs/kWh) | | |
|---------------------------|-----------------|-----------------|---------|---------|
| | | Minimum | Maximum | Average |
| Day Ahead Contingency | January , 2021 | 3.80 | 5.11 | 4.32 |
| | December , 2020 | 3.47 | 4.15 | 3.97 |
| | %Change | 9.51 | 23.13 | 8.82 |
| Intraday | January , 2021 | 4.35 | 4.35 | 4.35 |
| | December , 2020 | 3.40 | 3.64 | 3.52 |
| | %Change | 27.94 | 19.51 | 23.58 |
| Weekly | January , 2021 | 4.30 | 4.30 | 4.30 |
| | December , 2020 | 4.00 | 4.00 | 4.00 |

| | % Change | 7.50 | 7.50 | 7.50 |
|--------------|-----------------|------|------|------|
| Daily-Anyday | January , 2021 | 4.01 | 4.01 | 4.01 |
| | December , 2020 | - | - | - |
| | % Change | NA | NA | NA |

Table-6F

NA- Not Applicable

Non-Solar Energy in GTAM On Delivery date basis

The Final Scheduled Volume and the Price of electricity transacted in GTAM in IEX during January, 2021 and its comparison with December, 2020 has been shown in Table 6G & 6H below.

(iii) Final Scheduled Volume:

| Non-Solar Energy Contract | Period | Final Scheduled Volume (MU) | | | |
|---------------------------|----------------|-----------------------------|---------|---------|---------|
| | | Total | Minimum | Maximum | Average |
| Day Ahead Contingency | January, 2021 | 50.12 | 0.30 | 4.69 | 1.62 |
| | December, 2020 | 21.11 | 0.38 | 1.51 | 0.68 |
| | % Change | 137.42 | -21.05 | 210.60 | 138.24 |
| Intraday | January, 2021 | 0.38 | 0.38 | 0.38 | 0.38 |
| | December, 2020 | 0.20 | 0.02 | 0.18 | 0.10 |
| | % Change | 90.00 | 1,800 | 111.11 | 280.00 |
| Weekly | January, 2021 | 16.80 | 2.40 | 2.40 | 2.40 |
| | December, 2020 | 0.70 | 0.10 | 0.10 | 0.10 |
| | % Change | 2,300 | 2,300 | 2,300 | 2,300 |
| Daily-Anyday | January, 2021 | 0.36 | 0.07 | 0.07 | 0.07 |
| | December, 2020 | - | - | - | - |
| | % Change | NA | NA | NA | NA |

Table-6G

NA- Not Applicable

(iv) Daily Market Clearing Price (MCP):

| Non-Solar Energy Contract | Period | Prices (Rs/kWh) | | |
|---------------------------|-----------------|-----------------|---------|---------|
| | | Minimum | Maximum | Average |
| Day Ahead Contingency | January , 2021 | 3.80 | 5.11 | 4.30 |
| | December , 2020 | 3.47 | 4.15 | 3.97 |
| | %Change | 9.51 | 23.13 | 8.31 |
| Intraday | January , 2021 | 4.35 | 4.35 | 4.35 |
| | December , 2020 | 3.40 | 3.64 | 3.52 |
| | %Change | 27.94 | 19.51 | 23.58 |
| Weekly | January , 2021 | 4.30 | 4.30 | 4.30 |
| | December , 2020 | 4.00 | 4.00 | 4.00 |
| | % Change | 7.50 | 7.50 | 7.50 |
| Daily/Anyday | January , 2021 | 4.01 | 4.01 | 4.01 |
| | December , 2020 | No Transaction | | |
| | %Change | NA | NA | NA |

Table-6H

NA- Not Applicable

6. BILATRAL TRANSACTIONS:

The total volume of electricity transacted through **Bilateral transactions** in the month of January, 2021 for buy and sell were **5,717.37 MU** and **5,717.13 MU** respectively. The total buy volume of electricity transacted in bilateral market through direct transactions and traders were **2,022.88 MU** and **3,694.49 MU** respectively. Similarly, the total sell volume of electricity transacted in bilateral market through direct transactions and traders were **1,927.42 MU** and **3,789.70 MU** respectively. The details of Bilateral buy and sell Transactions of Electricity happened during January, 2021 have been shown in Tables Below:

| Volume (MU) | Buy | | Total Buy (MU) | Sell | | Total Sell (MU) |
|----------------|---------|---------|-----------------|---------|---------|-----------------|
| | Direct | Traders | | Direct | Traders | |
| Total | 2022.88 | 3694.49 | 5,717.37 | 1927.42 | 3789.70 | 5,717.13 |
| Maximum | 1074.93 | 796.30 | - | 562.47 | 502.76 | - |
| Minimum | 0.99 | 0.68 | - | 0.74 | 0.05 | - |

Table -7A

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

(i) Region-wise Buy Volume:**Table -7B**

| Region-wise Volume (MU) | ER | | WR | | NR | | SR | | NER | |
|-------------------------|--------|--------|---------|--------|--------|---------|--------|--------|--------|--------|
| | Direct | Trader | Direct | Trader | Direct | Trader | Direct | Trader | Direct | Trader |
| Total | 217.65 | 517.86 | 1184.62 | 250.85 | 173.87 | 2501.44 | 387.64 | 335.18 | 59.10 | 89.15 |
| Maximum | 97.06 | 180.20 | 1074.93 | 175.79 | 75.21 | 796.30 | 255.01 | 213.14 | 59.10 | 56.21 |
| Minimum | 5.48 | 13.00 | 1.38 | 0.68 | 1.75 | 28.88 | 0.99 | 4.44 | 59.10 | 2.58 |

(ii) Region-wise Sell Volume:

| Region-wise Volume (MU) | ER | | WR | | NR | | SR | | NER | |
|-------------------------|--------|--------|--------|---------|--------|---------|--------|--------|--------|--------|
| | Direct | Trader | Direct | Trader | Direct | Trader | Direct | Trader | Direct | Trader |
| Total | 272.77 | 209.83 | 809.41 | 1890.75 | 785.87 | 1046.83 | 57.23 | 542.77 | 2.14 | 99.53 |
| Maximum | 97.06 | 128.71 | 251.11 | 483.56 | 562.47 | 502.76 | 17.99 | 430.94 | 2.14 | 59.10 |
| Minimum | 6.70 | 0.05 | 0.74 | 15.14 | 1.75 | 1.79 | 1.38 | 0.84 | 2.14 | 0.05 |

Table -7C

6.1. The **top 5 buyers** on bilateral transaction through direct transactions in the month of January, 2021 are Madhya Pradesh, Telangana, Andhra Pradesh, Jharkhand and West Bengal, which constituted **80.53%** of the market volume. Whereas **top 5 buyers** on bilateral transaction through traders in the month of January, 2021 are Punjab, Himachal Pradesh, Rajasthan, Uttarakhand and Tamil Nadu, which constituted **64.72 %** of the market volume. [Annexure III]

- 6.2. The **top 5 sellers** on bilateral transaction through direct transactions in the month of January, 2021 are Punjab, RKM_POWER, Chhattisgarh, Uttar Pradesh and Adhunik Power, which constituted **66.32%** of the market volume. Whereas **top 5 sellers** on bilateral transaction through traders in the month of January, 2021 are Punjab, Raipur Energen, SEIL Project-2, JPL and Gujarat, which constituted **50.84%** of the market volume. [Annexure III]
- 6.3. The total volume of Deviation observed in the month of January, 2021 were **1804.44 MU** in import and **2131.10 MU** in export, respectively.
- 6.4. A comparison of volume of electricity transacted through both the Power Exchanges together in DAM and Bilateral **Buy (i.e. Direct and through traders)** in the month of January, 2021 is shown in **Figure 1**:

Figures in MUs

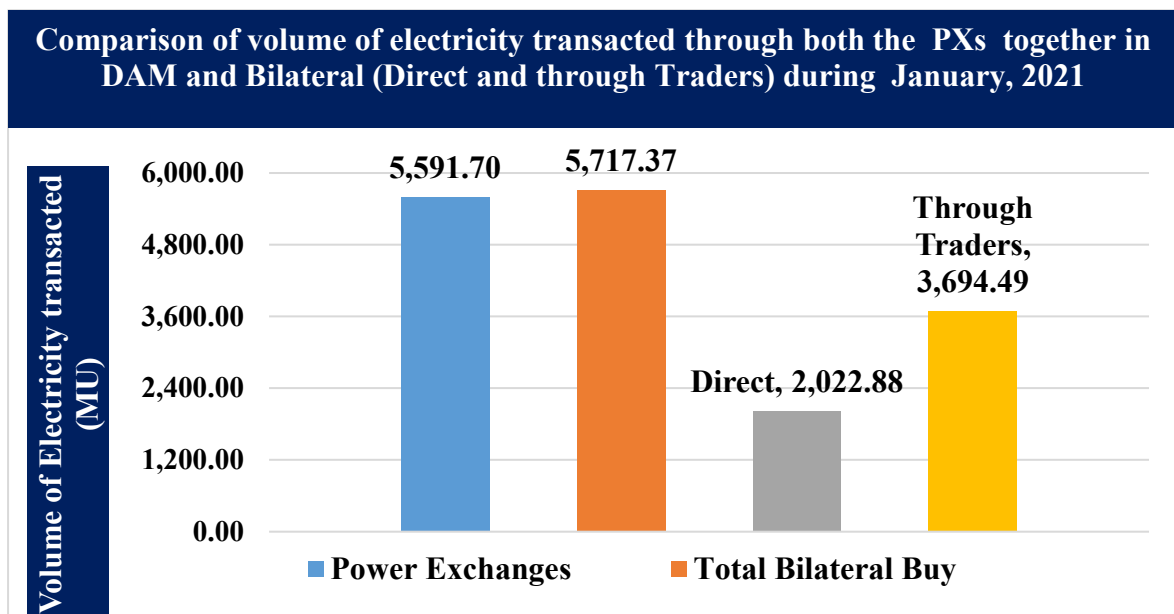


Figure -1

7. ANALYSIS OF MOVEMENT OF PRICES OBSERVED IN DAM DURING JANUARY, 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 January, 2021 month. The observations made are as under:

- 7.1. In order to find out the determinants which are responsible for the Daily MCP, a regression analysis has been carried out where the Daily MCP is the dependent variable and the independent variables are peak demand, total purchase bid, total sell bid, coal generation, hydro generation, wind generation and solar generation.
- 7.2. A double log function was used so that elasticity of Daily MCP could be read off from the coefficients of independent variables. The regression analysis revealed that the significant variables were the total purchase bid, total sell bid, Hydro generation and Solar 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 **0.63**. 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 January, 2021.

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

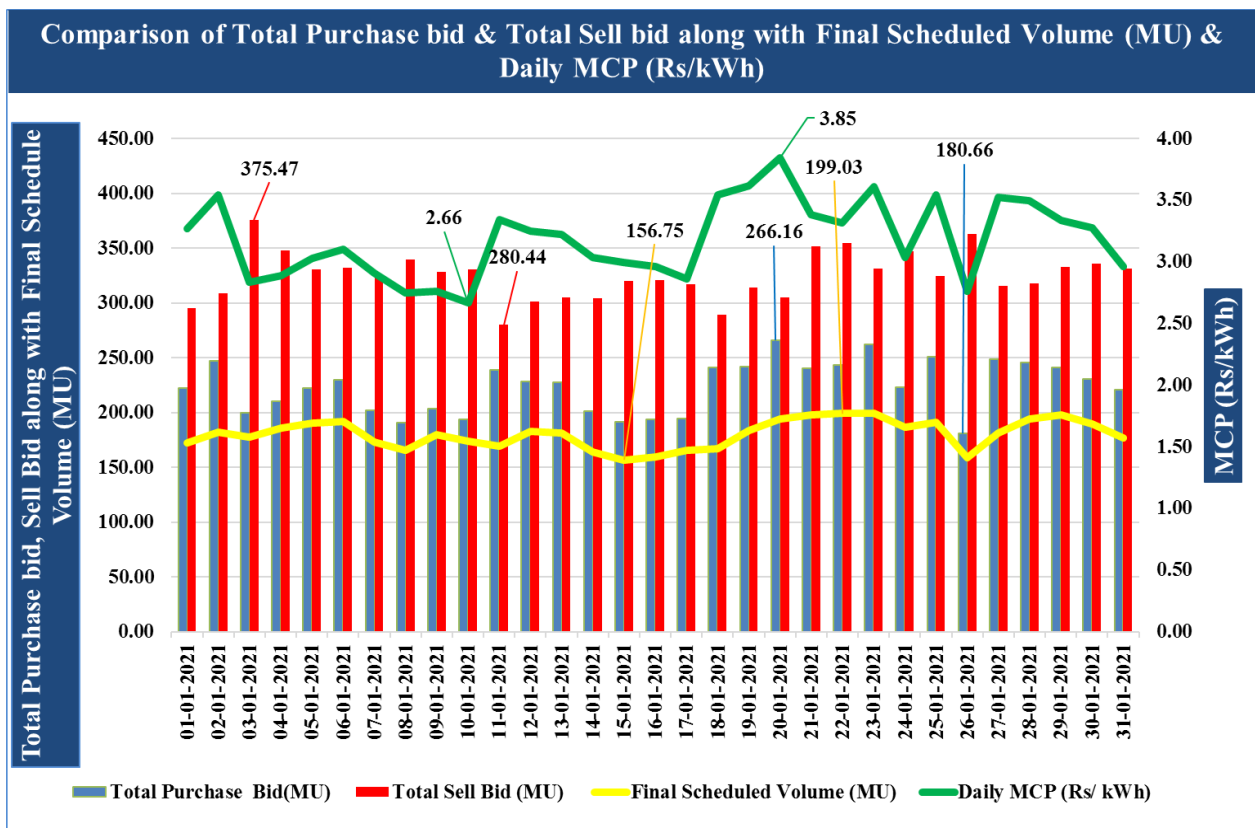


Figure -2

7.4. Invariably, the Final Scheduled Volume (MU) and the Daily MCP (Rs/kWh) showed decreasing trend on Sundays as the demand of electricity in the country is less compared to other days of week. However, in the month of January, 2021, it is observed that on Second Monday (i.e. 11th January, 2021), FSV showed decreasing trend in comparison to Sunday (i.e. 10th January, 2021) and on third Sunday (i.e. 17th January, 2021), FSV showed increasing trend in comparison to Saturday (i.e. 16th January, 2021). The detailed analysis on this is given at **Appendix-I**.

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

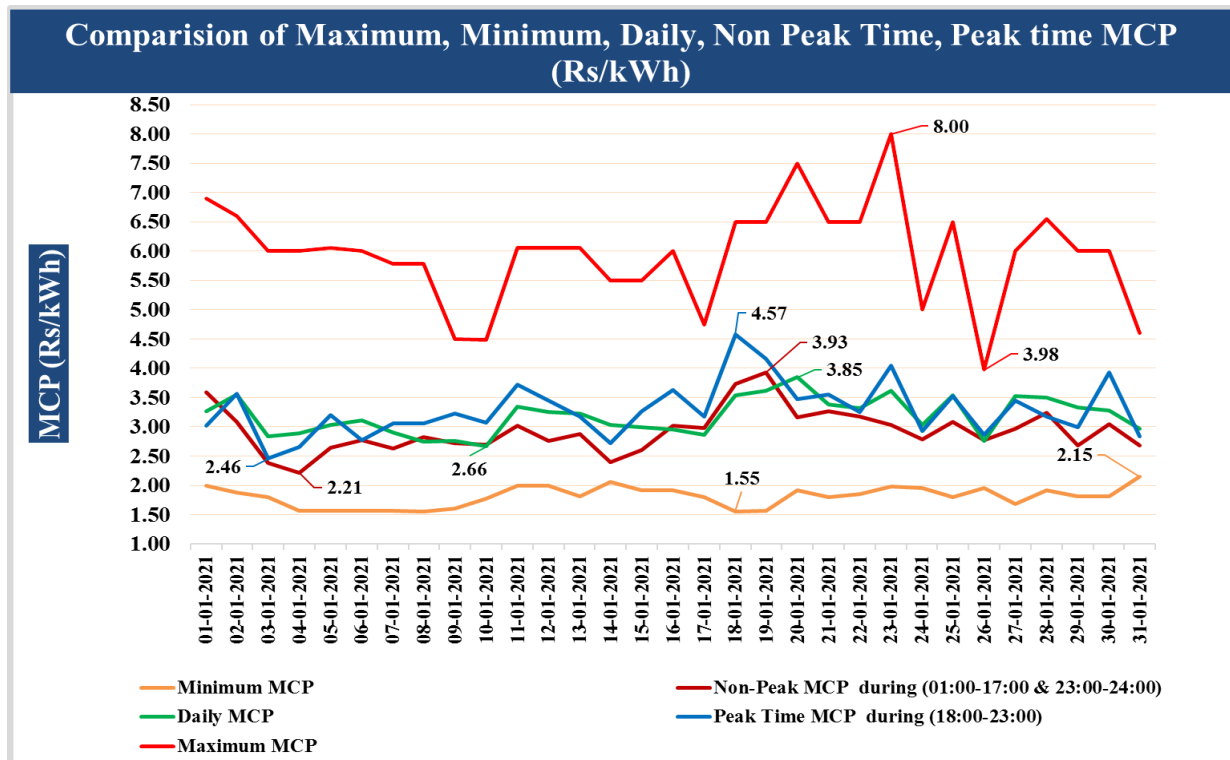


Figure -3

- 7.6. The Purchase Bids and the MCP discovered in each of the 15-minute time block during the month almost followed the same trend [Annexure V]. This is also corroborated with the outcome of regression analysis mentioned in at para 7.1 and 7.2 above.
- 7.7. On **22 days** during the month, the maximum FSV occurred during the **time period 07:15-08:30 Hrs.** [Annexure VI]
- 7.8. On **24 days** during the month, the maximum MCP occurred during the **time period 08:45-10:00 Hrs.** [Annexure VI]
- 7.9. On **29 days** during the month, the minimum FSV occurred during the **time period 22:30-24:00 Hrs.** [Annexure VI]
- 7.10. On **29 days** during the month, the minimum MCP occurred during the **time period 03:00-04:15 Hrs.** [Annexure VI]
- 7.11. The maximum demand met during the month of January, 2021 in the country occurred on **30th January, 2021 at 189.64 GW**, which is 3.69% greater than the maximum demand occurred during **December, 2020 [i.e. 182.89 GW on 30th, December, 2020]** and is 10.86% more than the maximum demand occurred during January, 2020 i.e. [171.06 GW on 28th January, 2020].

- 7.12.** One nation One Price was observed for all **31 days** in IEX in January, 2021, as there was no congestion in transmission system. . In PXIL, there was no congestion in transmission system during January, 2021, so one nation one price was observed on all 19 days during which transaction of electricity happened (i.e. 3rd to 8th, 14th, 17th and 21st to 31st, January, 2021). In the month of December, 2020, there was congestion in transmission system to the tune of **0.18 MU** in IEX on 19th December, 2020, hence, one nation one price was observed for 30 days on IEX. In PXIL, there was no congestion in transmission system during December, 2020, so one nation one price was observed on all 30 days during which transaction of electricity happened except 2nd December, 2020. Similarly, in the month of January, 2020, there was congestion in transmission system to the tune of **23.34 MU** in IEX on account of congestion on 7 days (2nd, 3rd, 6th, 10th to 12th and 31st January, 2020), hence, one nation one price was observed for **24 days** on IEX. In PXIL, there was no congestion in transmission system, so one nation one price was observed on all **21 days** during which transaction of electricity happened (i.e. 3rd to 18th, 21st to 24th and 30th January, 2020).
- 7.13.** There was **no** real time curtailment in IEX and PXIL in January, 2021. Further, there was no real time curtailment in IEX and PXIL in December, 2020. In January, 2020, there was real time curtailment of **1.04 MU** in IEX (i.e. 5th, 6th, 11th and 13th January, 2020), whereas in PXIL, there no real time curtailment in January, 2020.
- 7.14.** The **top 10 sellers** on the power exchanges in DAM in the month of January, 2021 are **West Bengal, Uttar Pradesh, Odisha, Jaypee Nigrie, Adani Power STG2, Madhya Pradesh, Rajasthan, Sembcorp Gayatri, Raipur Energen and Bihar**, which constituted **61.85 %** of the market volume. [Annexure VII]
- 7.15.** The **top 10 purchasers** on the power exchanges in DAM in the month of January, 2021 are **Telangana, Gujarat, Andhra Pradesh, Maharashtra, Tamil Nadu, UT of J&K and Ladakh, Rajasthan, Delhi, Uttar Pradesh and Haryana**, which constituted **82.83 %** of the market volume. [Annexure VII]
- 7.16.** The total volume of electricity purchased by Discoms/Licensees in DAM in the month of January, 2021 was **5,431.38 MU**, which constituted **97.40 %** of total volume of electricity purchased on both the power exchanges.
- 7.17.** Similarly, the total volume of electricity sold by Discoms/Licensees in DAM in the month of January, 2021 was **3,343.65 MU**, which constituted **59.96%** of total volume of electricity sold on both the power exchanges.

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

8.1. Similar to the regression analysis carried out for Day Ahead Market, the regression analysis for Real Time Market was also done. The regression analysis revealed that the significant variables were the total purchase bid and 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 **0.47**. 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 January, 2021 for RTM transactions.

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

8.3. The Total Purchase Bid, Total Sell Bid, Daily MCP and FSV are shown in Figure-4 below:

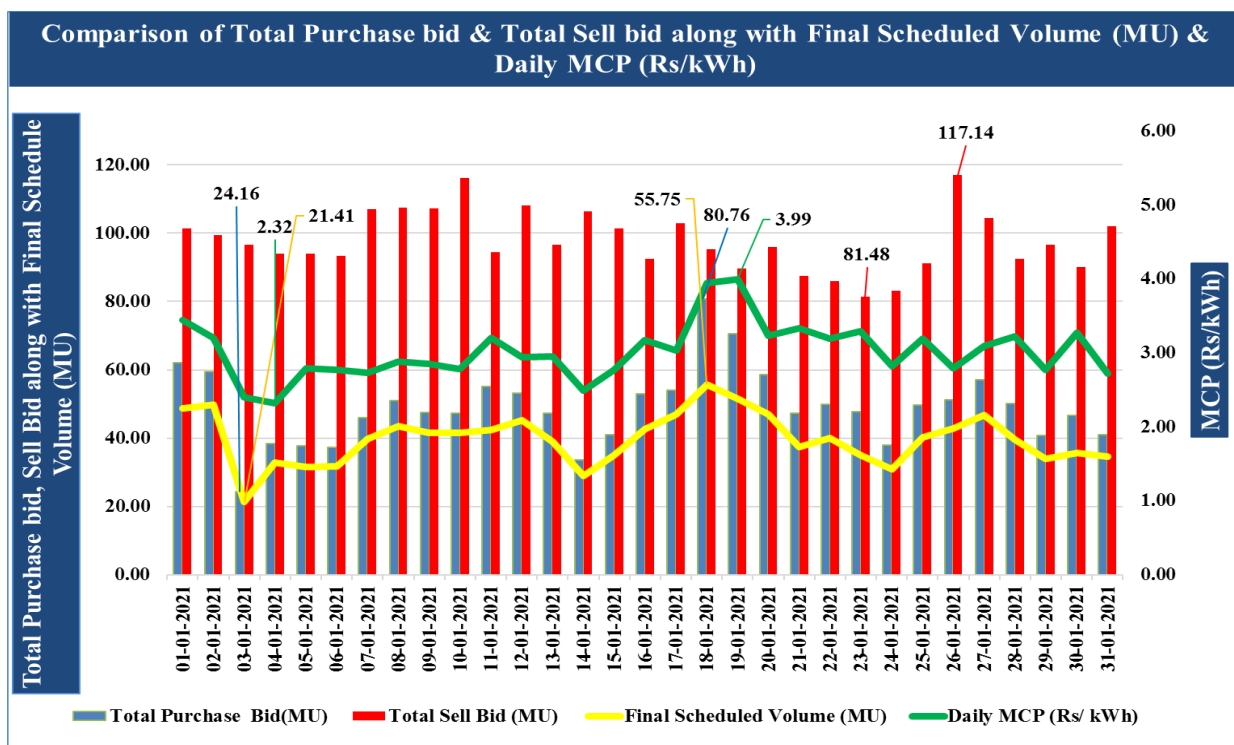


Figure-4

8.4. A comparison of maximum, minimum, daily, non-peak time, peak time MCP is shown in Figure-5. The same are also tabulated in Annexure VIII.

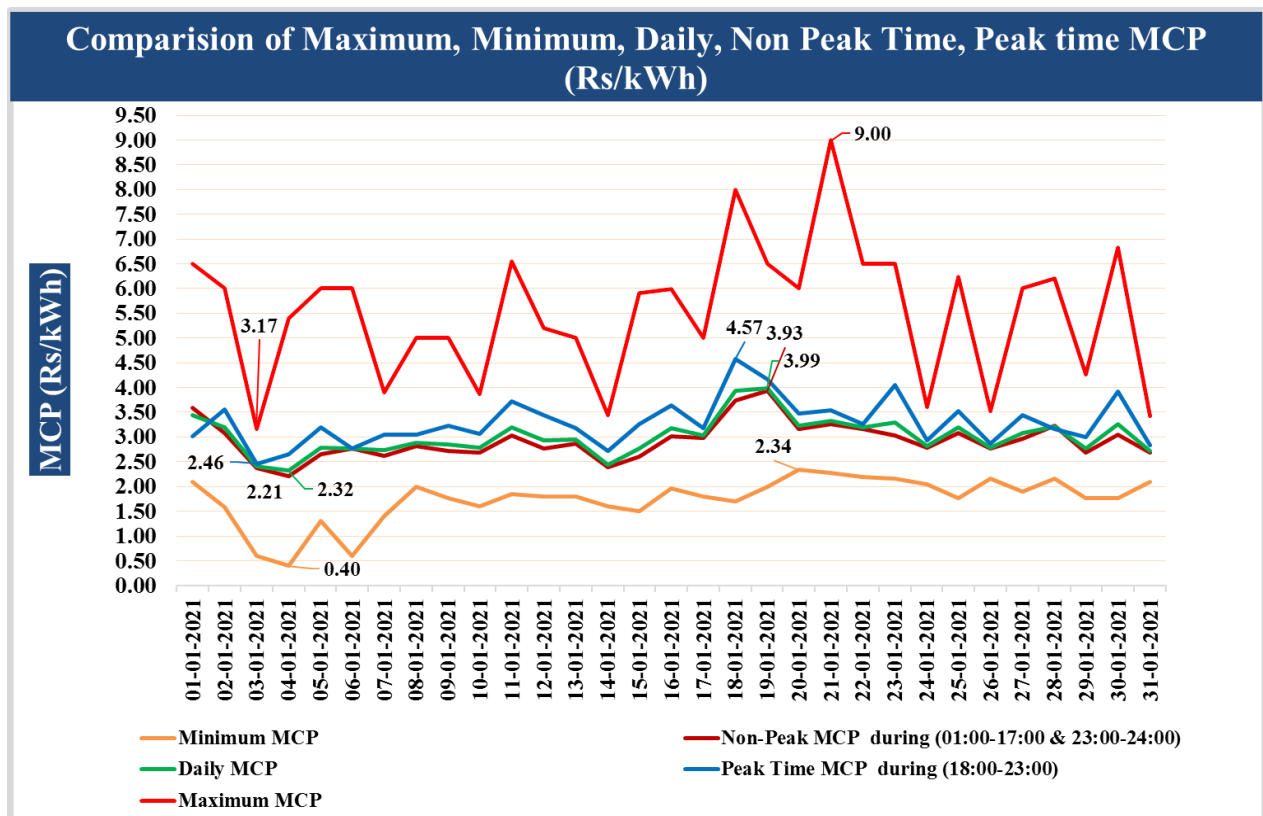


Figure-5

- 8.5. On **11 days** during the month, the maximum FSV occurred during the **time period 18:30-20:00 Hrs.** [Annexure X]
- 8.6. On **13 days** during the month, the maximum MCP occurred during the **time period 18:45-19:45 Hrs.** [Annexure X]
- 8.7. On **9 days** during the month, the minimum FSV occurred during the **time period 21:45-23:45 Hrs.** [Annexure X]
- 8.8. There was **no** real time curtailment in IEX in Real Time Market during January, 2021 and December, 2020, whereas, no transaction of electricity happened in PXIL during January, 2021 and December, 2020.
- 8.9. In the month of January, 2021, there was congestion of **2.29 MU** in transmission system in IEX in Real Time Market on account of congestion on seven **days** (i.e. 1st, 7th, 23rd to 25th, 27th and 28th January, 2021), hence, one nation one price was observed for **24 days** in IEX. Whereas, in PXIL, no transaction of electricity happened in January, 2021 in Real Time Market. Further, in the month of December, 2020, there was congestion of **0.02 MU** in transmission system in IEX in Real Time Market on account of congestion on **four days** (i.e. 1st, 2nd, 14th and 31st December, 2020), hence, one nation one price was observed for **27 days** in IEX. Whereas, in PXIL, no transaction of electricity happened in December, 2020 in Real Time Market.

- 8.10.** The **top 10 sellers** on the power exchanges in RTM in the month of January, 2021 are **Odisha, Madhya Pradesh, Uttar Pradesh, West Bengal, Karnataka, Delhi, Rajasthan, Tripura, NLCTPS-II and Sembcorp Gayatri**, which constituted **62.85%** of the market volume. [Annexure XI]
- 8.11.** The **top 10 purchasers** on the power exchanges in RTM in the month of January, 2021 are **UT of J&K and Ladakh, Telangana, Rajasthan, Andhra Pradesh, Uttar Pradesh, Maharashtra, Gujarat, Punjab, West Bengal and Delhi**, which constituted **84.31%** of the market volume. [Annexure XI]
- 8.12.** The total volume of electricity purchased by Discoms/Licensees in RTM in the month of January, 2021 was **1,202.77 MU**, which constituted **98.54 %** of total volume of electricity purchased on both the power exchanges.
- 8.13.** Similarly, the total volume of electricity sold by Discoms/Licensees in RTM in the month of January, 2021 was **800.03 MU**, which constituted **65.54 %** 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, 2020 to January, 2021 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, 2020 | 3,692.04 | - | 2.42 | NA | 0 | NA |
| | May, 2020 | 5,573.73 | 22.24 | 2.57 | 2.58 | 0 | 0 |
| | June, 2020 | 4,174.34 | 15.03 | 2.35 | 2.56 | 0 | 0 |
| Total Quarter -I | April - June, 2020 | 13,440.11 | 37.27 | | | 0 | 0 |
| Quarter-II | July, 2020 | 4,486.71 | - | 2.47 | NA | 0 | NA |
| | August, 2020 | 4,484.36 | 14.10 | 2.43 | 2.64 | 0 | 0 |
| | September, 2020 | 4,780.99 | 60.20 | 2.69 | 2.70 | 0 | 0 |
| Total Quarter -II | July – September, 2020 | 13,752.06 | 74.30 | | | 0 | 0 |
| Quarter-III | October, 2020 | 5,500.53 | 49.57 | 2.74 | 2.80 | 0.16 | 0 |
| | November, 2020 | 4,860.46 | 48.62 | 2.73 | 2.87 | 0 | 0 |
| | December, 2020 | 5,605.58 | 5.42 | 2.83 | 3.25 | 0 | 0 |
| Total Quarter -III | October-December, 2020 | 15,966.57 | 103.61 | | | 0.16 | 0 |
| Quarter-IV | January, 2021 | 5584.07 | 7.63 | 3.18 | 3.85 | 0 | 0 |
| Total April - January, 2021 | | 48742.81 | 222.81 | | | 0.16 | 0 |

- : No Transaction happened

NA: Not Applicable

Final Scheduled Volume in Term Ahead Market (TAM) for the months of April, 2020 to January, 2021 of IEX and PXIL (Delivery and Trade date basis)

| Quarter | Months | Final Scheduled Volume (MU) on Delivery Date Basis | | |
|------------------------------------|-------------------------------|--|-----------------|-----------------|
| | | IEX | PXIL | Total |
| Quarter - I | April, 2020 | 359.94 | 191.30 | 551.24 |
| | May, 2020 | 431.38 | 284.38 | 715.76 |
| | June, 2020 | 100.34 | 74.88 | 175.22 |
| Total Quarter - I | April - June, 2020 | 891.66 | 550.56 | 1,442.22 |
| Quarter-II | July, 2020 | 62.45 | 28.29 | 90.74 |
| | August, 2020 | 120.53 | 321.22 | 441.75 |
| | September, 2020 | 106.64 | 472.44 | 579.08 |
| Total Quarter -II | July – September, 2020 | 289.62 | 821.95 | 1,111.57 |
| Quarter-III | October, 2020 | 219.16 | 791.06 | 1010.22 |
| | November, 2020 | 245.41 | 872.60 | 1118.01 |
| | December, 2020 | 435.72 | 929.73 | 1365.45 |
| Total Quarter -III | October-December, 2020 | 900.29 | 2,593.39 | 3,493.68 |
| Quarter-IV | January, 2021 | 524.08 | 626.10 | 1150.18 |
| Total April - January, 2021 | | 2605.65 | 4592.00 | 7197.65 |

| Quarter | Months | Final Scheduled Volume (MU) Trade Date Basis | | |
|------------------------------------|-------------------------------|--|----------------|----------------|
| | | IEX | PXIL | Total |
| Quarter - I | April, 2020 | 340.52 | 282.72 | 623.24 |
| | May, 2020 | 377.67 | 218.35 | 596.02 |
| | June, 2020 | 72.28 | 51.36 | 123.64 |
| Total Quarter - I | April - June, 2020 | 790.47 | 552.43 | 1342.90 |
| Quarter-II | July, 2020 | 60.27 | 117.13 | 177.4 |
| | August, 2020 | 146.93 | 270.72 | 417.65 |
| | September, 2020 | 98.30 | 510.42 | 608.72 |
| Total Quarter -II | July – September, 2020 | 305.50 | 898.27 | 1203.77 |
| Quarter-III | October, 2020 | 276.80 | 973.45 | 1250.25 |
| | November, 2020 | 189.00 | 744.35 | 933.35 |
| | December, 2020 | 371.59 | 924.08 | 1295.67 |
| Total Quarter -III | October-December, 2020 | 837.39 | 2641.88 | 3479.27 |
| Quarter-IV | January, 2021 | 324.31 | 659.13 | 983.44 |
| Total April - January, 2021 | | 2257.67 | 4751.71 | 7009.38 |

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

(i) Top five Buyers in Bilateral transactions

| Entity Name | Direct | | Entity Name | Through Traders | |
|----------------------------------|----------------|---------------|----------------------------------|-----------------|---------------|
| | (MU) | Percent | | (MU) | Percent |
| Madhya Pradesh | 1074.93 | 53.14% | Punjab | 796.30 | 21.55% |
| Telangana | 255.01 | 12.61% | Himachal Pradesh | 581.92 | 15.75% |
| Andhra Pradesh | 112.23 | 5.55% | Rajasthan | 496.05 | 13.43% |
| Jharkhand | 97.06 | 4.80% | Uttarakhand | 303.55 | 8.22% |
| West Bengal | 89.89 | 4.44% | Tamil Nadu | 213.14 | 5.77% |
| Total Volume | 1629.11 | 80.53% | Total Volume | 2390.96 | 64.72% |
| Total Volume in Bilateral | 2022.88 | | Total Volume in Bilateral | 3694.49 | |

(ii) Top five Sellers in Bilateral transactions

| Entity Name | Direct | | Entity Name | Through Traders | |
|----------------------------------|----------------|---------------|----------------------------------|-----------------|---------------|
| | (MU) | Percent | | (MU) | Percent |
| Punjab | 562.47 | 29.18% | Punjab | 502.76 | 13.27% |
| RKM_POWER | 251.11 | 13.03% | Raipur Energen | 483.56 | 12.76% |
| CHATTISGARH | 206.75 | 10.73% | SEIL Project-2 | 430.94 | 11.37% |
| Uttar Pradesh | 160.80 | 8.34% | JPL | 274.48 | 7.24% |
| Adhunik Power | 97.06 | 5.04% | Gujarat | 235.07 | 6.20% |
| Total Volume | 1278.18 | 66.32% | Total Volume | 1926.81 | 50.84% |
| Total Volume in Bilateral | 1927.42 | | Total Volume in Bilateral | 3789.70 | |

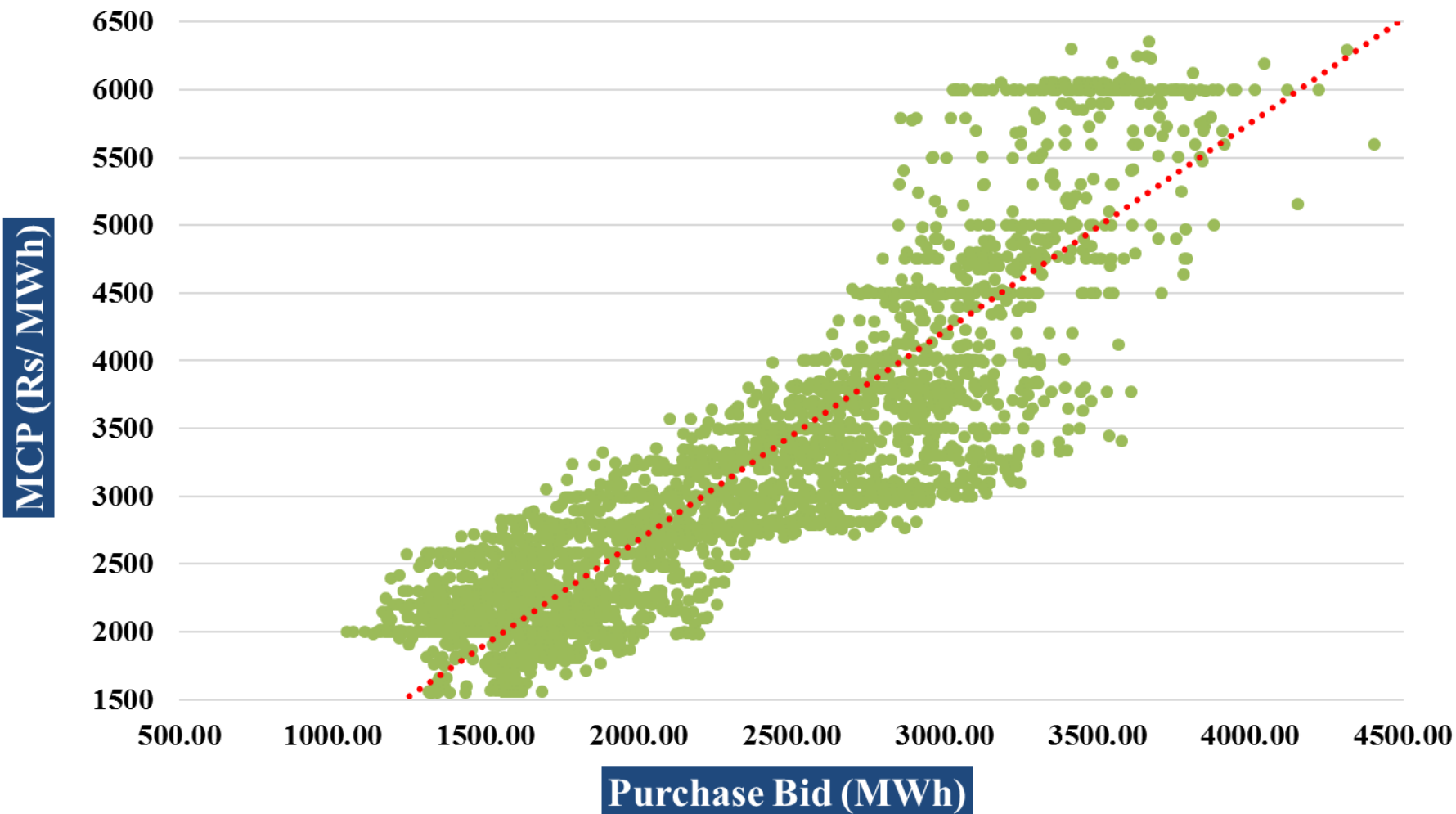
Annexure-IV**Peak Time MCP, Non-Peak MCP, Maximum MCP, Minimum MCP, Average MCP and Final Scheduled Volume (MU) in DAM**

| 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) |
|----------------|---------------------------------------|--------------------------|--------------------------|------------------------------------|---|-------------|-------------|-------------|-----------------------------|
| 01-01-2021 | 2.33 | 4.55 | 4.29 | 3.02 | 3.59 | 6.90 | 2.00 | 3.27 | 172.51 |
| 02-01-2021 | 2.22 | 3.94 | 3.45 | 3.56 | 3.08 | 6.60 | 1.88 | 3.55 | 181.72 |
| 03-01-2021 | 1.68 | 2.70 | 2.90 | 2.46 | 2.38 | 6.00 | 1.81 | 2.84 | 177.16 |
| 04-01-2021 | 0.86 | 2.37 | 3.47 | 2.65 | 2.21 | 6.00 | 1.56 | 2.89 | 185.70 |
| 05-01-2021 | 1.90 | 2.93 | 3.24 | 3.20 | 2.65 | 6.05 | 1.56 | 3.03 | 190.21 |
| 06-01-2021 | 1.78 | 2.87 | 3.70 | 2.77 | 2.77 | 6.00 | 1.56 | 3.11 | 191.43 |
| 07-01-2021 | 2.00 | 3.01 | 3.03 | 3.05 | 2.63 | 5.79 | 1.56 | 2.91 | 172.92 |
| 08-01-2021 | 2.25 | 3.53 | 2.99 | 3.06 | 2.82 | 5.79 | 1.55 | 2.75 | 165.63 |
| 09-01-2021 | 2.19 | 3.12 | 3.02 | 3.23 | 2.72 | 4.50 | 1.60 | 2.76 | 179.38 |
| 10-01-2021 | 2.40 | 3.11 | 2.74 | 3.07 | 2.69 | 4.49 | 1.77 | 2.66 | 173.43 |
| 11-01-2021 | 2.26 | 4.13 | 3.16 | 3.71 | 3.02 | 6.05 | 1.99 | 3.34 | 169.47 |
| 12-01-2021 | 2.34 | 3.34 | 2.86 | 3.44 | 2.77 | 6.05 | 1.99 | 3.25 | 182.59 |
| 13-01-2021 | 2.27 | 3.58 | 3.08 | 3.17 | 2.87 | 6.05 | 1.81 | 3.23 | 181.13 |
| 14-01-2021 | 2.07 | 3.11 | 2.30 | 2.73 | 2.39 | 5.50 | 2.06 | 3.03 | 164.05 |
| 15-01-2021 | 2.04 | 2.97 | 2.97 | 3.27 | 2.61 | 5.50 | 1.92 | 3.00 | 156.75 |
| 16-01-2021 | 2.29 | 3.56 | 3.43 | 3.63 | 3.02 | 6.00 | 1.92 | 2.96 | 159.11 |
| 17-01-2021 | 2.32 | 3.80 | 3.16 | 3.18 | 2.98 | 4.75 | 1.80 | 2.86 | 165.74 |
| 18-01-2021 | 2.17 | 5.06 | 4.54 | 4.57 | 3.73 | 6.50 | 1.55 | 3.54 | 167.07 |
| 19-01-2021 | 2.46 | 5.02 | 4.78 | 4.16 | 3.93 | 6.50 | 1.56 | 3.62 | 183.42 |
| 20-01-2021 | 2.50 | 3.97 | 3.34 | 3.47 | 3.16 | 7.50 | 1.92 | 3.85 | 193.82 |
| 21-01-2021 | 2.48 | 4.91 | 3.10 | 3.55 | 3.26 | 6.50 | 1.81 | 3.38 | 197.75 |
| 22-01-2021 | 2.38 | 4.07 | 3.44 | 3.25 | 3.17 | 6.50 | 1.85 | 3.31 | 199.03 |
| 23-01-2021 | 2.33 | 3.80 | 3.30 | 4.05 | 3.04 | 8.00 | 1.99 | 3.61 | 198.98 |
| 24-01-2021 | 2.33 | 3.12 | 3.05 | 2.93 | 2.78 | 5.00 | 1.95 | 3.03 | 186.46 |
| 25-01-2021 | 2.28 | 4.04 | 3.33 | 3.53 | 3.08 | 6.50 | 1.80 | 3.54 | 191.18 |
| 26-01-2021 | 2.45 | 3.12 | 2.90 | 2.86 | 2.77 | 3.98 | 1.95 | 2.76 | 158.49 |
| 27-01-2021 | 2.19 | 3.62 | 3.36 | 3.45 | 2.97 | 6.00 | 1.69 | 3.53 | 180.92 |
| 28-01-2021 | 2.33 | 4.06 | 3.67 | 3.17 | 3.24 | 6.55 | 1.92 | 3.50 | 194.30 |
| 29-01-2021 | 2.15 | 3.21 | 2.93 | 3.00 | 2.69 | 6.00 | 1.82 | 3.33 | 197.74 |
| 30-01-2021 | 2.25 | 4.32 | 3.12 | 3.92 | 3.05 | 6.00 | 1.82 | 3.28 | 189.34 |
| 31-01-2021 | 2.24 | 3.17 | 2.84 | 2.83 | 2.68 | 4.60 | 2.15 | 2.96 | 176.66 |
| Maximum | 2.50 | 5.06 | 4.78 | 4.57 | 3.93 | 8.00 | 2.15 | 3.85 | 199.03 |
| Minimum | 0.86 | 2.37 | 2.30 | 2.46 | 2.21 | 3.98 | 1.55 | 2.66 | 156.75 |
| Average | 2.19 | 3.62 | 3.27 | 3.29 | 2.93 | 5.94 | 1.81 | 3.18 | 180.13 |

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 January, 2021



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

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

| Date | Max. FSV (MU) | | Max. MCP (Rs/kWh) | | Min FSV (MU) | | Min. MCP (Rs/kWh) | |
|------------|---------------|-------|-------------------|-------|---------------|-------|-------------------|-------|
| | Time Block | Value | Time Block | Value | Time Block | Value | Time Block | Value |
| 01-01-2021 | 07:30 - 07:45 | 2.64 | 09:00 - 09:15 | 6.90 | 22:45 - 23:00 | 0.86 | 04:00 - 04:15 | 2.00 |
| 02-01-2021 | 08:15 - 08:30 | 2.73 | 10:15 - 10:30 | 6.60 | 22:30 - 22:45 | 1.03 | 03:45 - 04:00 | 1.88 |
| 03-01-2021 | 08:15 - 08:30 | 2.80 | 09:30 - 09:45 | 6.00 | 22:30 - 22:45 | 0.97 | 03:30 - 03:45 | 1.81 |
| 04-01-2021 | 07:15 - 07:30 | 2.65 | 09:15 - 09:30 | 6.00 | 22:30 - 22:45 | 1.03 | 03:30 - 03:45 | 1.56 |
| 05-01-2021 | 08:00 - 08:15 | 2.66 | 09:30 - 09:45 | 6.05 | 22:45 - 23:00 | 1.06 | 03:45 - 04:00 | 1.56 |
| 06-01-2021 | 07:15 - 07:30 | 2.79 | 09:15 - 09:30 | 6.00 | 23:00 - 23:15 | 1.07 | 03:45 - 04:00 | 1.56 |
| 07-01-2021 | 07:15 - 07:30 | 2.49 | 09:15 - 09:30 | 5.79 | 22:30 - 22:45 | 1.01 | 03:45 - 04:00 | 1.56 |
| 08-01-2021 | 18:15 - 18:30 | 2.44 | 09:15 - 09:30 | 5.79 | 22:45 - 23:00 | 1.01 | 03:45 - 04:00 | 1.55 |
| 09-01-2021 | 18:15 - 18:30 | 2.63 | 18:30 - 18:45 | 4.50 | 22:45 - 23:00 | 1.07 | 03:45 - 04:00 | 1.60 |
| 10-01-2021 | 07:45 - 08:00 | 2.73 | 09:15 - 09:30 | 4.49 | 22:15 - 22:30 | 1.09 | 03:45 - 04:00 | 1.77 |
| 11-01-2021 | 07:45 - 08:00 | 2.62 | 09:00 - 09:15 | 6.05 | 23:30 - 23:45 | 0.96 | 03:45 - 04:00 | 1.99 |
| 12-01-2021 | 07:15 - 07:30 | 2.83 | 09:30 - 09:45 | 6.05 | 22:30 - 22:45 | 1.13 | 03:45 - 04:00 | 1.99 |
| 13-01-2021 | 07:00 - 07:15 | 2.80 | 09:30 - 09:45 | 6.05 | 22:30 - 22:45 | 1.09 | 04:00 - 04:15 | 1.81 |
| 14-01-2021 | 07:30 - 07:45 | 2.49 | 08:30 - 08:45 | 5.50 | 22:45 - 23:00 | 1.06 | 04:00 - 04:15 | 2.06 |
| 15-01-2021 | 18:45 - 19:00 | 2.53 | 09:30 - 09:45 | 5.50 | 22:30 - 22:45 | 0.92 | 03:15 - 03:30 | 1.92 |
| 16-01-2021 | 07:30 - 07:45 | 2.47 | 08:45 - 09:00 | 6.00 | 22:30 - 22:45 | 0.95 | 04:00 - 04:15 | 1.92 |
| 17-01-2021 | 07:45 - 08:00 | 2.66 | 19:00 - 19:15 | 4.75 | 22:45 - 23:00 | 0.93 | 03:15 - 03:30 | 1.80 |
| 18-01-2021 | 07:30 - 07:45 | 2.62 | 09:45 - 10:00 | 6.50 | 22:30 - 22:45 | 1.08 | 03:45 - 04:00 | 1.55 |
| 19-01-2021 | 16:15 - 16:30 | 2.69 | 09:45 - 10:00 | 6.50 | 23:15 - 23:30 | 1.03 | 03:45 - 04:00 | 1.56 |
| 20-01-2021 | 07:15 - 07:30 | 2.91 | 09:45 - 10:00 | 7.50 | 22:30 - 22:45 | 1.20 | 03:45 - 04:00 | 1.92 |
| 21-01-2021 | 07:15 - 07:30 | 3.00 | 08:45 - 09:00 | 6.50 | 22:45 - 23:00 | 1.09 | 03:45 - 04:00 | 1.81 |
| 22-01-2021 | 07:15 - 07:30 | 2.94 | 08:45 - 09:00 | 6.50 | 22:30 - 22:45 | 1.18 | 03:45 - 04:00 | 1.85 |
| 23-01-2021 | 07:15 - 07:30 | 2.91 | 09:15 - 09:30 | 8.00 | 22:30 - 22:45 | 1.19 | 03:15 - 03:30 | 1.99 |
| 24-01-2021 | 07:30 - 07:45 | 2.91 | 08:45 - 09:00 | 5.00 | 22:30 - 22:45 | 0.95 | 22:00 - 22:15 | 1.95 |
| 25-01-2021 | 15:45 - 16:00 | 2.79 | 09:30 - 09:45 | 6.50 | 22:45 - 23:00 | 1.28 | 04:00 - 04:15 | 1.80 |
| 26-01-2021 | 08:00 - 08:15 | 2.43 | 09:45 - 10:00 | 3.98 | 22:45 - 23:00 | 0.91 | 03:00 - 03:15 | 1.95 |
| 27-01-2021 | 16:15 - 16:30 | 2.66 | 19:15 - 19:30 | 6.00 | 22:30 - 22:45 | 1.05 | 03:45 - 04:00 | 1.69 |
| 28-01-2021 | 07:15 - 07:30 | 2.79 | 09:45 - 10:00 | 6.55 | 22:30 - 22:45 | 1.07 | 03:00 - 03:15 | 1.92 |
| 29-01-2021 | 19:00 - 19:15 | 2.88 | 09:45 - 10:00 | 6.00 | 22:30 - 22:45 | 1.14 | 04:00 - 04:15 | 1.82 |
| 30-01-2021 | 18:45 - 19:00 | 2.86 | 08:15 - 08:30 | 6.00 | 22:30 - 22:45 | 0.96 | 04:00 - 04:15 | 1.82 |
| 31-01-2021 | 07:15 - 07:30 | 2.86 | 08:30 - 08:45 | 4.60 | 03:15 - 03:30 | 0.89 | 22:00 - 22:15 | 2.15 |

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 January, 2021**

| S. No. | Entity Name | Sell | | Entity Name | Purchase | |
|--------|--------------------------|--------|-------------|----------------------------|----------|-------------|
| | | (MU) | Percent (%) | | (MU) | Percent (%) |
| 1. | West Bengal | 726.91 | 13.04% | Telangana | 996.78 | 17.88% |
| 2. | Uttar Pradesh | 698.36 | 12.52% | Gujarat | 706.01 | 12.66% |
| 3. | Orissa | 577.81 | 10.36% | Andhra Pradesh | 580.15 | 10.40% |
| 4. | Jaypee Nigrie | 260.66 | 4.67% | Maharashtra | 494.83 | 8.87% |
| 5. | Adani Power STG2 | 260.27 | 4.67% | Tamilnadu | 442.88 | 7.94% |
| 6. | Madhya Pradesh | 250.53 | 4.49% | J&K | 434.64 | 7.79% |
| 7. | Rajasthan | 188.76 | 3.39% | Rajasthan | 310.42 | 5.57% |
| 8. | Sembcorp Gayatri | 171.15 | 3.07% | Delhi | 247.86 | 4.44% |
| 9. | Raipur Energen | 163.33 | 2.93% | Uttar Pradesh | 232.12 | 4.16% |
| 10. | Bihar | 151.40 | 2.72% | Haryana | 173.23 | 3.11% |
| 11. | DB Power | 144.89 | 2.60% | ArcelorMittal Nippon steel | 141.21 | 2.53% |
| 12. | Jindal Power | 138.74 | 2.49% | Chhatisgarh | 124.44 | 2.23% |
| 13. | Karnataka | 133.14 | 2.39% | Madhya Pradesh | 96.53 | 1.73% |
| 14. | Teesta -3 | 132.25 | 2.37% | Punjab | 90.95 | 1.63% |
| 15. | JITPL | 124.39 | 2.23% | Uttarakhand | 88.80 | 1.59% |
| 16. | Assam | 118.80 | 2.13% | Kerala | 55.19 | 0.99% |
| 17. | Raigarh Energy Ltd. | 115.55 | 2.07% | Bihar | 53.93 | 0.97% |
| 18. | Delhi | 102.50 | 1.84% | Jharkhand | 51.86 | 0.93% |
| 19. | MB Power | 87.23 | 1.56% | Dadra & Nagar Haveli | 49.29 | 0.88% |
| 20. | GMR Warora | 85.48 | 1.53% | Himachal Pradesh | 47.27 | 0.85% |
| 21. | Jindal Power Ltd. Stg-II | 82.53 | 1.48% | Assam | 41.54 | 0.74% |
| 22. | Thermal Powertech | 81.49 | 1.46% | Karnataka | 36.89 | 0.66% |
| 23. | Himachal Pradesh | 73.96 | 1.33% | Chandigarh | 17.23 | 0.31% |
| 24. | Essar Power MP Ltd | 51.08 | 0.92% | Orissa | 13.08 | 0.23% |
| 25. | Maruti Clean Coal Power | 45.44 | 0.81% | Daman & Diu | 12.31 | 0.22% |
| 26. | Haryana | 44.15 | 0.79% | Meghalaya | 8.95 | 0.16% |
| 27. | Maharashtra | 41.24 | 0.74% | Goa WR | 6.95 | 0.12% |
| 28. | Telangana | 37.67 | 0.68% | Arunachal Pradesh | 6.59 | 0.12% |
| 29. | Chhatisgarh | 33.31 | 0.60% | West Bengal | 6.48 | 0.12% |
| 30. | Goa WR | 31.10 | 0.56% | KAPS 3&4 | 3.65 | 0.07% |
| 31. | Kerala | 30.81 | 0.55% | Goa SR | 2.84 | 0.05% |
| 32. | Jindal Steel | 27.78 | 0.50% | Manipur | 1.04 | 0.02% |
| 33. | BALCO 2 | 27.28 | 0.49% | Nagaland | 0.29 | 0.01% |
| 34. | Jhabua Power | 24.73 | 0.44% | | | |
| 35. | Tripura | 21.28 | 0.38% | | | |
| 36. | Tamilnadu | 18.59 | 0.33% | | | |
| 37. | Andhra Pradesh | 18.48 | 0.33% | | | |

| | | | | | | |
|-----|-------------------------------|-----------------|---------------|-------------------------------|-----------------|---------------|
| 38. | ACBIL | 17.89 | 0.32% | | | |
| 39. | Gujarat | 17.63 | 0.32% | | | |
| 40. | SKS Power | 17.39 | 0.31% | | | |
| 41. | Korba Stg 3 | 16.59 | 0.30% | | | |
| 42. | RKM Power | 16.16 | 0.29% | | | |
| 43. | Spectrum Coal | 14.13 | 0.25% | | | |
| 44. | Karcham Wangtoo | 12.62 | 0.23% | | | |
| 45. | Bongaigaon | 12.57 | 0.23% | | | |
| 46. | GMR Kamalanga | 11.72 | 0.21% | | | |
| 47. | Singoli Bhagwati | 11.68 | 0.21% | | | |
| 48. | AD Hydro | 11.35 | 0.20% | | | |
| 49. | IL&FS | 9.86 | 0.18% | | | |
| 50. | Sainj HEP | 9.43 | 0.17% | | | |
| 51. | Sikkim | 8.15 | 0.15% | | | |
| 52. | Farakka Stg 3 | 7.31 | 0.13% | | | |
| 53. | NTPL | 7.24 | 0.13% | | | |
| 54. | Adhunik Power | 7.00 | 0.13% | | | |
| 55. | DVC | 4.78 | 0.09% | | | |
| 56. | Ramagundam Stg-1 | 4.16 | 0.07% | | | |
| 57. | Dikchu | 3.86 | 0.07% | | | |
| 58. | Arunachal Pradesh | 3.86 | 0.07% | | | |
| 59. | NLC TPS-II | 3.79 | 0.07% | | | |
| 60. | Jharkhand | 3.35 | 0.06% | | | |
| 61. | Mizoram | 2.96 | 0.05% | | | |
| 62. | Punjab | 2.71 | 0.05% | | | |
| 63. | Torrent Power | 2.21 | 0.04% | | | |
| 64. | NLC | 1.88 | 0.03% | | | |
| 65. | Jorethang | 1.66 | 0.03% | | | |
| 66. | Ramagundam Stg-3 | 1.58 | 0.03% | | | |
| 67. | Tashiding HEP | 1.26 | 0.02% | | | |
| 68. | NLC TPS-II Stg-2 | 1.13 | 0.02% | | | |
| 69. | Chuzachen | 1.12 | 0.02% | | | |
| 70. | Chandigarh | 0.90 | 0.02% | | | |
| 71. | Dhariwal | 0.80 | 0.01% | | | |
| 72. | Palatana | 0.73 | 0.01% | | | |
| 73. | Dadra & Nagar Haveli | 0.52 | 0.01% | | | |
| 74. | Khargone STPP | 0.38 | 0.01% | | | |
| 75. | NLC TPS-II Expn | 0.33 | 0.01% | | | |
| 76. | Lanco Budhil | 0.31 | 0.01% | | | |
| 77. | Simhadri Stg-2 | 0.16 | 0.00% | | | |
| | Total Volume of top 10 | 3,449.18 | 61.85% | Total Volume of top 10 | 4,618.93 | 82.83% |
| | Total Volume in PXs | 5,576.24 | | Total Volume in PXs | 5,576.24 | |

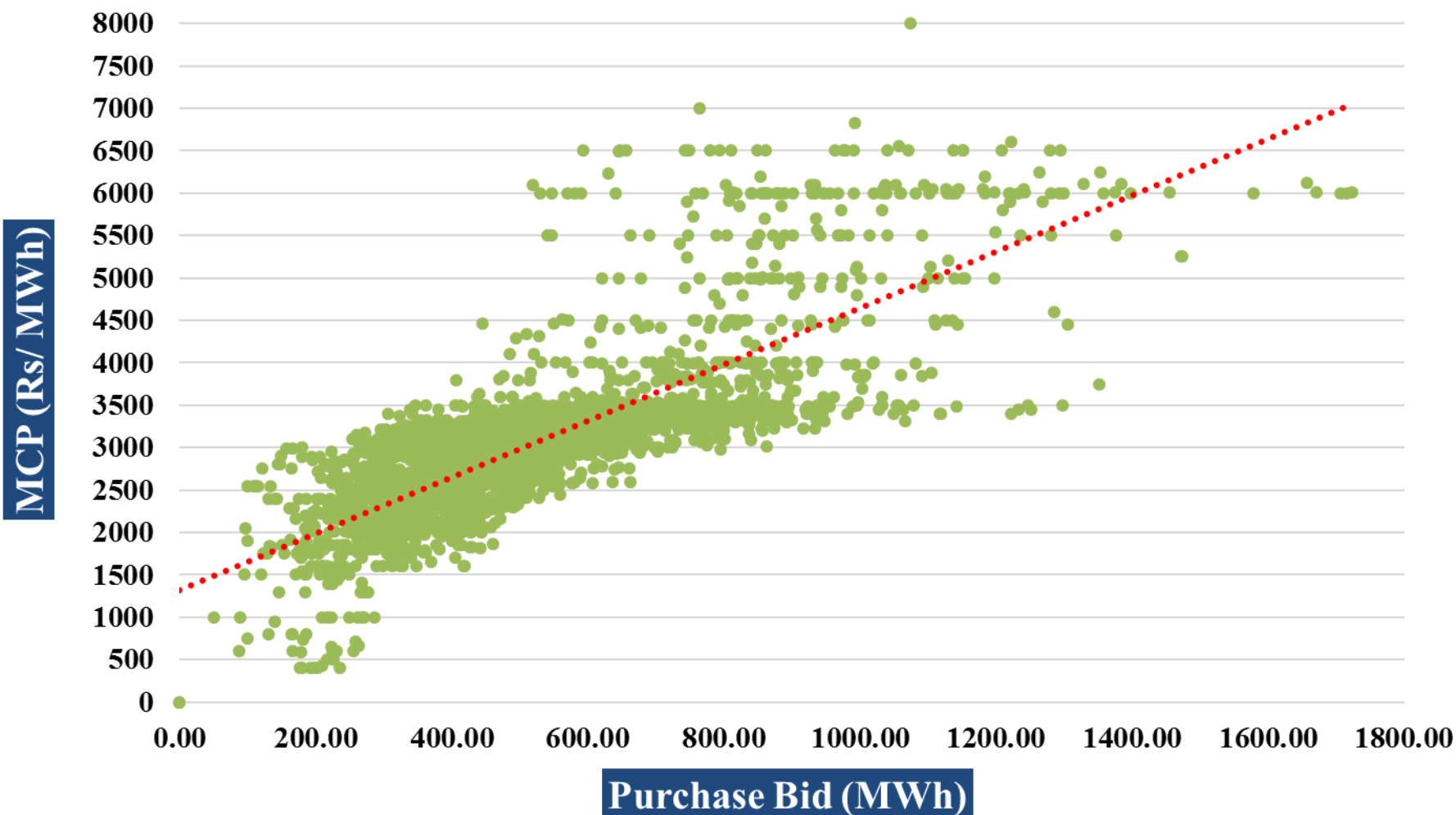
Annexure-VIII**Peak Time MCP, Non-Peak MCP, Maximum MCP, Minimum MCP, Average MCP and Final Scheduled Volume (MU) in RTM**

| 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) |
|----------------|---------------------------------------|--------------------------|--------------------------|------------------------------------|---|-------------|-------------|-------------|-----------------------------|
| 01-01-2021 | 2.33 | 4.55 | 4.29 | 3.02 | 3.59 | 6.50 | 2.10 | 3.45 | 48.74 |
| 02-01-2021 | 2.22 | 3.94 | 3.45 | 3.56 | 3.08 | 6.00 | 1.59 | 3.20 | 49.70 |
| 03-01-2021 | 1.68 | 2.70 | 2.90 | 2.46 | 2.38 | 3.17 | 0.60 | 2.40 | 21.41 |
| 04-01-2021 | 0.86 | 2.37 | 3.47 | 2.65 | 2.21 | 5.40 | 0.40 | 2.32 | 32.85 |
| 05-01-2021 | 1.90 | 2.93 | 3.24 | 3.20 | 2.65 | 6.00 | 1.30 | 2.79 | 31.54 |
| 06-01-2021 | 1.78 | 2.87 | 3.70 | 2.77 | 2.77 | 6.00 | 0.60 | 2.77 | 31.72 |
| 07-01-2021 | 2.00 | 3.01 | 3.03 | 3.05 | 2.63 | 3.91 | 1.40 | 2.73 | 39.73 |
| 08-01-2021 | 2.25 | 3.53 | 2.99 | 3.06 | 2.82 | 5.00 | 2.00 | 2.88 | 43.46 |
| 09-01-2021 | 2.19 | 3.12 | 3.02 | 3.23 | 2.72 | 5.00 | 1.76 | 2.85 | 41.44 |
| 10-01-2021 | 2.40 | 3.11 | 2.74 | 3.07 | 2.69 | 3.87 | 1.60 | 2.78 | 41.46 |
| 11-01-2021 | 2.26 | 4.13 | 3.16 | 3.71 | 3.02 | 6.55 | 1.85 | 3.20 | 42.45 |
| 12-01-2021 | 2.34 | 3.34 | 2.86 | 3.44 | 2.77 | 5.21 | 1.80 | 2.94 | 45.30 |
| 13-01-2021 | 2.27 | 3.58 | 3.08 | 3.17 | 2.87 | 5.00 | 1.80 | 2.95 | 38.86 |
| 14-01-2021 | 2.07 | 3.11 | 2.30 | 2.73 | 2.39 | 3.45 | 1.60 | 2.43 | 28.85 |
| 15-01-2021 | 2.04 | 2.97 | 2.97 | 3.27 | 2.61 | 5.91 | 1.50 | 2.77 | 34.99 |
| 16-01-2021 | 2.29 | 3.56 | 3.43 | 3.63 | 3.02 | 6.00 | 1.97 | 3.17 | 42.55 |
| 17-01-2021 | 2.32 | 3.80 | 3.16 | 3.18 | 2.98 | 5.00 | 1.80 | 3.03 | 47.06 |
| 18-01-2021 | 2.17 | 5.06 | 4.54 | 4.57 | 3.73 | 8.00 | 1.70 | 3.94 | 55.75 |
| 19-01-2021 | 2.46 | 5.02 | 4.78 | 4.16 | 3.93 | 6.50 | 2.00 | 3.99 | 51.50 |
| 20-01-2021 | 2.50 | 3.97 | 3.34 | 3.47 | 3.16 | 6.00 | 2.34 | 3.23 | 47.05 |
| 21-01-2021 | 2.48 | 4.91 | 3.10 | 3.55 | 3.26 | 9.00 | 2.28 | 3.33 | 37.32 |
| 22-01-2021 | 2.38 | 4.07 | 3.44 | 3.25 | 3.17 | 6.50 | 2.20 | 3.19 | 39.97 |
| 23-01-2021 | 2.33 | 3.80 | 3.30 | 4.05 | 3.04 | 6.50 | 2.16 | 3.29 | 35.05 |
| 24-01-2021 | 2.33 | 3.12 | 3.05 | 2.93 | 2.78 | 3.60 | 2.04 | 2.82 | 30.87 |
| 25-01-2021 | 2.28 | 4.04 | 3.33 | 3.53 | 3.08 | 6.23 | 1.77 | 3.19 | 40.32 |
| 26-01-2021 | 2.45 | 3.12 | 2.90 | 2.86 | 2.77 | 3.53 | 2.16 | 2.79 | 42.93 |
| 27-01-2021 | 2.19 | 3.62 | 3.36 | 3.45 | 2.97 | 6.00 | 1.90 | 3.09 | 46.69 |
| 28-01-2021 | 2.33 | 4.06 | 3.67 | 3.17 | 3.24 | 6.20 | 2.16 | 3.22 | 39.58 |
| 29-01-2021 | 2.15 | 3.21 | 2.93 | 3.00 | 2.69 | 4.26 | 1.77 | 2.76 | 33.92 |
| 30-01-2021 | 2.25 | 4.32 | 3.12 | 3.92 | 3.05 | 6.82 | 1.77 | 3.27 | 35.71 |
| 31-01-2021 | 2.24 | 3.17 | 2.84 | 2.83 | 2.68 | 3.42 | 2.09 | 2.72 | 34.53 |
| Maximum | 2.50 | 5.06 | 4.78 | 4.57 | 3.93 | 9.00 | 2.34 | 3.99 | 55.75 |
| Minimum | 0.86 | 2.37 | 2.30 | 2.46 | 2.21 | 3.17 | 0.40 | 2.32 | 21.41 |
| Average | 2.19 | 3.62 | 3.27 | 3.29 | 2.93 | 5.50 | 1.74 | 3.02 | 39.78 |

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 January, 2021



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

Annexure-X**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 |
| 01-01-2021 | 19:00-19:15 | 0.86 | 10:30-10:45 | 6.50 | 06:45-07:00 | 0.24 | 03:00-03:15 | 2.10 |
| 02-01-2021 | 13:45-14:00 | 0.98 | 19:00-19:15 | 6.00 | 23:15-23:30 | 0.21 | 01:00-01:15 | 1.59 |
| 03-01-2021 | 11:45-12:00 | 0.57 | 08:30-08:45 | 3.17 | 21:45-22:00 | 0.05 | 23:45-24:00 | 0.60 |
| 04-01-2021 | 18:45-19:00 | 0.75 | 16:45-17:00 | 5.40 | 00:30-00:45 | 0.13 | 06:00-06:15 | 0.40 |
| 05-01-2021 | 14:45-15:00 | 0.59 | 19:00-19:15 | 6.00 | 23:15-23:30 | 0.13 | 03:45-04:00 | 1.30 |
| 06-01-2021 | 11:45-12:00 | 0.65 | 11:00-11:15 | 6.00 | 23:15-23:30 | 0.15 | 05:30-05:45 | 0.60 |
| 07-01-2021 | 19:45-20:00 | 0.76 | 10:15-10:30 | 3.91 | 06:30-06:45 | 0.20 | 00:15-00:30 | 1.40 |
| 08-01-2021 | 10:45-11:00 | 0.76 | 08:45-09:00 | 5.00 | 00:30-00:45 | 0.23 | 01:00-01:15 | 2.00 |
| 09-01-2021 | 11:30-11:45 | 0.77 | 19:30-19:45 | 5.00 | 06:30-06:45 | 0.22 | 03:45-04:00 | 1.76 |
| 10-01-2021 | 19:30-19:45 | 0.75 | 19:15-19:30 | 3.87 | 00:00-00:15 | 0.26 | 12:15-12:30 | 1.60 |
| 11-01-2021 | 19:45-20:00 | 0.95 | 09:15-09:30 | 6.55 | 00:15-00:30 | 0.14 | 04:00-04:15 | 1.85 |
| 12-01-2021 | 19:45-20:00 | 0.93 | 19:00-19:15 | 5.21 | 00:30-00:45 | 0.17 | 23:45-24:00 | 1.80 |
| 13-01-2021 | 09:30-09:45 | 0.86 | 08:45-09:00 | 5.00 | 23:00-23:15 | 0.16 | 23:30-23:45 | 1.80 |
| 14-01-2021 | 10:30-10:45 | 0.63 | 18:45-19:00 | 3.45 | 06:30-06:45 | 0.14 | 14:00-14:15 | 1.60 |
| 15-01-2021 | 18:30-18:45 | 0.67 | 18:45-19:00 | 5.91 | 02:15-02:30 | 0.15 | 03:45-04:00 | 1.50 |
| 16-01-2021 | 19:45-20:00 | 1.09 | 19:15-19:30 | 6.00 | 22:00-22:15 | 0.19 | 01:15-01:30 | 1.97 |
| 17-01-2021 | 19:15-19:30 | 0.84 | 18:45-19:00 | 5.00 | 04:30-04:45 | 0.17 | 03:15-03:30 | 1.80 |
| 18-01-2021 | 15:00-15:15 | 1.06 | 10:30-10:45 | 8.00 | 04:30-04:45 | 0.25 | 04:30-04:45 | 1.70 |
| 19-01-2021 | 11:15-11:30 | 0.93 | 10:15-10:30 | 6.50 | 00:15-00:30 | 0.19 | 02:15-02:30 | 2.00 |
| 20-01-2021 | 10:45-11:00 | 1.14 | 18:45-19:00 | 6.00 | 06:45-07:00 | 0.20 | 02:30-02:45 | 2.34 |
| 21-01-2021 | 17:30-17:45 | 0.62 | 09:00-09:15 | 9.00 | 09:00-09:15 | 0.21 | 23:00-23:15 | 2.28 |
| 22-01-2021 | 10:45-11:00 | 0.71 | 09:30-09:45 | 6.50 | 23:30-23:45 | 0.17 | 02:30-02:45 | 2.20 |
| 23-01-2021 | 08:15-08:30 | 0.56 | 19:00-19:15 | 6.50 | 09:45-10:00 | 0.11 | 03:00-03:15 | 2.16 |
| 24-01-2021 | 19:00-19:15 | 0.50 | 07:45-08:00 | 3.60 | 02:30-02:45 | 0.20 | 23:45-24:00 | 2.04 |
| 25-01-2021 | 09:45-10:00 | 0.66 | 08:30-08:45 | 6.23 | 23:30-23:45 | 0.24 | 04:00-04:15 | 1.77 |
| 26-01-2021 | 16:15-16:30 | 0.71 | 07:30-07:45 | 3.53 | 22:30-22:45 | 0.23 | 23:45-24:00 | 2.16 |
| 27-01-2021 | 11:30-11:45 | 0.81 | 19:00-19:15 | 6.00 | 00:00-00:15 | 0.21 | 04:00-04:15 | 1.90 |
| 28-01-2021 | 19:30-19:45 | 0.81 | 09:30-09:45 | 6.20 | 04:45-05:00 | 0.24 | 03:00-03:15 | 2.16 |
| 29-01-2021 | 09:45-10:00 | 0.68 | 09:15-09:30 | 4.26 | 00:15-00:30 | 0.16 | 00:30-00:45 | 1.77 |
| 30-01-2021 | 18:00-18:15 | 0.59 | 18:45-19:00 | 6.82 | 00:15-00:30 | 0.21 | 02:00-02:15 | 1.77 |
| 31-01-2021 | 09:45-10:00 | 0.61 | 08:45-09:00 | 3.42 | 04:15-04:30 | 0.18 | 03:30-03:45 | 2.09 |

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 January, 2021**

| S. No. | Entity Name | Sell | | Entity Name | Purchase | |
|--------|--------------------------|--------|-------------|-----------------------------|----------|-------------|
| | | (MU) | Percent (%) | | (MU) | Percent (%) |
| 1. | Odisha | 153.30 | 12.56% | UT of J&K and Ladakh | 378.48 | 31.01% |
| 2. | Madhya Pradesh | 142.97 | 11.71% | Telangana | 163.64 | 13.41% |
| 3. | Uttar Pradesh | 107.61 | 8.82% | Rajasthan | 137.18 | 11.24% |
| 4. | West Bengal | 96.76 | 7.93% | Andhra Pradesh | 95.13 | 7.79% |
| 5. | Karnataka | 72.50 | 5.94% | Uttar Pradesh | 44.49 | 3.64% |
| 6. | Delhi | 47.94 | 3.93% | Maharashtra | 43.78 | 3.59% |
| 7. | Rajasthan | 41.12 | 3.37% | Gujarat | 43.69 | 3.58% |
| 8. | Tripura | 37.77 | 3.09% | Punjab | 43.35 | 3.55% |
| 9. | NLC TPS-II | 33.60 | 2.75% | West Bengal | 43.17 | 3.54% |
| 10. | Sembcorp Gayatri | 33.56 | 2.75% | Delhi | 36.15 | 2.96% |
| 11. | RKM Power | 31.48 | 2.58% | Bihar | 28.17 | 2.31% |
| 12. | MB Power | 28.44 | 2.33% | DVC | 23.72 | 1.94% |
| 13. | Meenakshi Energy | 24.23 | 1.98% | Chhattisgarh | 17.92 | 1.47% |
| 14. | NLC TPS-II Stg-2 | 22.19 | 1.82% | Kerala | 17.25 | 1.41% |
| 15. | GMR Warora | 21.69 | 1.78% | Haryana | 16.04 | 1.31% |
| 16. | Kameng HEP | 20.42 | 1.67% | Odisha | 14.92 | 1.22% |
| 17. | UT of J&K and Ladakh | 20.18 | 1.65% | Tamil Nadu | 11.78 | 0.97% |
| 18. | NTPL | 17.44 | 1.43% | Jharkhand | 8.90 | 0.73% |
| 19. | Raipur Energen | 15.98 | 1.31% | Himachal Pradesh | 8.31 | 0.68% |
| 20. | Manipur | 13.83 | 1.13% | Madhya Pradesh | 7.71 | 0.63% |
| 21. | NTPC Kudgi | 13.63 | 1.12% | Jindal Power Ltd. Stg-II | 5.69 | 0.47% |
| 22. | Jhabua Power | 12.44 | 1.02% | Assam | 5.20 | 0.43% |
| 23. | Jindal Power Ltd. Stg-II | 11.96 | 0.98% | Jindal Steel | 3.70 | 0.30% |
| 24. | Himachal Pradesh | 11.48 | 0.94% | Meghalaya | 3.64 | 0.30% |
| 25. | Raigarh Energy Ltd. | 11.08 | 0.91% | SKS Power | 3.43 | 0.28% |
| 26. | Telangana | 10.47 | 0.86% | Arcelor Mittal Nippon steel | 2.85 | 0.23% |
| 27. | DB Power | 9.89 | 0.81% | Manipur | 2.73 | 0.22% |
| 28. | Kerala | 9.34 | 0.77% | Goa SR | 1.80 | 0.15% |
| 29. | Khargone STPP | 8.25 | 0.68% | Goa WR | 1.44 | 0.12% |
| 30. | Adani Power STG2 | 7.55 | 0.62% | Karnataka | 1.40 | 0.11% |
| 31. | NLC | 7.35 | 0.60% | Uttarakhand | 1.31 | 0.11% |
| 32. | BALCO 2 | 6.50 | 0.53% | Dadra & Nagar Haveli | 0.93 | 0.08% |
| 33. | Mouda Stg-2 | 5.83 | 0.48% | Jindal Power | 0.72 | 0.06% |
| 34. | Thermal Powertech | 5.26 | 0.43% | Tashiding HEP | 0.48 | 0.04% |
| 35. | DVC | 5.12 | 0.42% | Daman & Diu | 0.40 | 0.03% |
| 36. | Neyveli New Thermal | 5.06 | 0.41% | Maruti Clean Coal Power | 0.37 | 0.03% |
| 37. | Sikkim | 4.99 | 0.41% | Jaypee Nigrie | 0.28 | 0.02% |
| 38. | Haryana | 4.93 | 0.40% | Nagaland | 0.13 | 0.01% |
| 39. | Simhadri Stg-2 | 4.86 | 0.40% | Jhabua Power | 0.13 | 0.01% |

| | | | | | | |
|-----|-------------------------|------|-------|------------------|------|-------|
| 40. | Ramagundam Stg-1 | 4.49 | 0.37% | Jorethang | 0.09 | 0.01% |
| 41. | SKS Power | 4.39 | 0.36% | Meenakshi Energy | 0.08 | 0.01% |
| 42. | NLC TPS-II Expn | 4.21 | 0.34% | Chandigarh | 0.02 | 0.00% |
| 43. | Jindal Power | 4.17 | 0.34% | Sikkim | 0.01 | 0.00% |
| 44. | Chhattisgarh | 3.96 | 0.32% | | | |
| 45. | Sasan UMPP | 3.85 | 0.32% | | | |
| 46. | Maharashtra | 3.75 | 0.31% | | | |
| 47. | Gujarat | 3.65 | 0.30% | | | |
| 48. | NTPC Sholapur | 3.64 | 0.30% | | | |
| 49. | NTPC Gadarwara | 3.52 | 0.29% | | | |
| 50. | Mouda Stg-1 | 3.44 | 0.28% | | | |
| 51. | Barh Stg-2 | 3.33 | 0.27% | | | |
| 52. | Bihar | 3.05 | 0.25% | | | |
| 53. | Bongaigaon | 2.85 | 0.23% | | | |
| 54. | Dadri GPP | 2.59 | 0.21% | | | |
| 55. | Andhra Pradesh | 2.11 | 0.17% | | | |
| 56. | Tamil Nadu | 2.07 | 0.17% | | | |
| 57. | IL&FS | 1.94 | 0.16% | | | |
| 58. | Maruti Clean Coal Power | 1.84 | 0.15% | | | |
| 59. | Farakka | 1.79 | 0.15% | | | |
| 60. | GMR Kamalanga | 1.54 | 0.13% | | | |
| 61. | Farakka Stg 3 | 1.49 | 0.12% | | | |
| 62. | AGBPP | 1.41 | 0.12% | | | |
| 63. | Rihand-II | 1.39 | 0.11% | | | |
| 64. | Ramagundam Stg-3 | 1.01 | 0.08% | | | |
| 65. | BRBCL | 0.98 | 0.08% | | | |
| 66. | Punjab | 0.96 | 0.08% | | | |
| 67. | Palatana | 0.93 | 0.08% | | | |
| 68. | Spectrum Coal | 0.80 | 0.07% | | | |
| 69. | Kawas | 0.76 | 0.06% | | | |
| 70. | TRN Energy | 0.71 | 0.06% | | | |
| 71. | ACBIL | 0.64 | 0.05% | | | |
| 72. | Coastal Gujrat Power | 0.56 | 0.05% | | | |
| 73. | Korba Stg 3 | 0.56 | 0.05% | | | |
| 74. | Torrent Power | 0.40 | 0.03% | | | |
| 75. | Adani Power STG3 | 0.24 | 0.02% | | | |
| 76. | NSPCL Bhilai | 0.24 | 0.02% | | | |
| 77. | JITPL | 0.22 | 0.02% | | | |
| 78. | Sainj HEP | 0.21 | 0.02% | | | |
| 79. | Tashiding HEP | 0.20 | 0.02% | | | |
| 80. | AGTPP | 0.19 | 0.02% | | | |
| 81. | Jharkhand | 0.19 | 0.02% | | | |
| 82. | Chuzachen | 0.17 | 0.01% | | | |
| 83. | Singoli Bhagwati | 0.16 | 0.01% | | | |
| 84. | Karcham Wangtoo | 0.12 | 0.01% | | | |
| 85. | RGPPPL_Others | 0.12 | 0.01% | | | |
| 86. | Dadri_Combined RLNG | 0.11 | 0.01% | | | |

| | | | | | | |
|-----|-------------------------------|-----------------|---------------|-------------------------------|-----------------|---------------|
| 87. | RGPPPL_IR | 0.10 | 0.01% | | | |
| 88. | Dhariwal | 0.10 | 0.01% | | | |
| 89. | Gandhar | 0.09 | 0.01% | | | |
| 90. | Kawas_NAPM | 0.09 | 0.01% | | | |
| 91. | Dadra & Nagar Haveli | 0.09 | 0.01% | | | |
| 92. | Dikchu | 0.08 | 0.01% | | | |
| 93. | Essar Power MP Ltd | 0.06 | 0.01% | | | |
| 94. | Jorethang | 0.03 | 0.00% | | | |
| 95. | Simhadri Stg-1 | 0.02 | 0.00% | | | |
| | Total Volume of top 10 | 767.12 | 62.85% | Total Volume of top 10 | 1,029.04 | 84.31% |
| | Total Volume in PXs | 1,220.59 | | Total Volume in PXs | 1,220.59 | |

Appendix-I**Analysis for change in trend of Final Scheduled Volume in DAM on 2nd Monday and 3rd Sunday of January, 2021 (i.e. 11th and 17st January, 2021)**

During the month of January, 2021, it is observed that on Second Monday (i.e. 11th January, 2021), FSV showed decreasing trend in comparison to Sunday (i.e. 10th January, 2021) and on third Sunday (i.e. 17th January, 2021), FSV showed increasing trend in comparison to Saturday (i.e. 16th January, 2021). On analysis, it has been found as under:

- (i) On Second Monday (11th January, 2021), although there was increase in purchase on power exchange by some of the States in comparison to Sunday (10th January, 2021) by **24.49 MU** [i.e. Rajasthan (6.28 MU), Chhattisgarh (3.95 MU), UT of J&K Ladakh (2.99 MU), Uttarakhand (2.84 MU), Uttar Pradesh (2.20 MU), Delhi (2.15 MU) and Haryana (1.81 MU), etc.], there was also decrease in purchase on power exchange by some of the States by **28.44 MU** [i.e. Gujarat (11.21 MU), Andhra Pradesh (6.69 MU), Maharashtra (5.42 MU), Tamil Nadu (1.68 MU), etc.], This resulted in an overall decrease in FSV by **3.96 MU** on Monday (11th January, 2021).
- (ii) On third Sunday (17th January, 2021), although there was decrease in purchase on power exchange by some of the States in comparison to Saturday (16th January, 2021) by **19.00 MU** [i.e. Maharashtra (6.91 MU), Punjab (2.63 MU), Haryana (2.50 MU), Delhi (1.92 MU), etc.], there was also increase in purchase on power exchange by some of the States by **25.63 MU** [i.e. Gujarat (9.18 MU), Rajasthan (4.58 MU), UT of J&K Ladakh (3.70 MU), Andhra Pradesh (2.97), Tamil Nadu (1.41 MU), etc.] This resulted in an overall increase in FSV by **6.63 MU** on Sunday (17th January, 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, Uttaranchal, Rajasthan, Delhi; **N3:** Punjab; **E1:** West Bengal, Sikkim, Bihar, Jharkhand; **E2:** Odisha; **W1:** Madhya Pradesh; **W2:** Maharashtra, Gujarat, Daman and Diu, Dadar and Nagar Haveli, North Goa; **W3:** Chhattisgarh; **S1:** Andhra Pradesh, Telangana, Karnataka, Pondicherry (Yanam), South Goa; **S2:** Tamil Nadu, Pondicherry (Puducherry), Pondicherry (Karaikal), Pondicherry (Mahe); **S3:** Kerala; **A1:** Tripura, Manipur, Mizoram, Nagaland; **A2:** Assam, Arunachal Pradesh, Meghalaya.

2. **Average MCP** is the average of daily MCP of the days during the month on which transaction happened.

3. **Bilateral Transaction** means a transaction for exchange of electrical energy (MWh) between a specified buyer and a specified seller, from a specified point of injection to a specified point of drawal for a fixed or varying quantum of power (MW) for any time block during a month.

4. **Daily MCP** is the average of MCP of all 96 Time Blocks of the day during which transaction happened.

5. **Day-Ahead Market (DAM)** on the power exchanges are market for electricity where market participants purchase and sell electricity at financially binding day-ahead prices for the following day.

6. **Elasticity** is percentage of change in MCP with respect to change in independent variable viz. peak demand, average purchase bid, average sell bid, generation from coal based plants, generation from hydro based plants, generation from wind based plants and generation from solar plants.

7. **Energy Supplied** is the total energy (MU) available at the States' periphery.

8. **Final Scheduled Volume** is the total of scheduled volume of all 96 time blocks in a day during the month in which transaction happened.

9. **Green Term Ahead Market (GTAM)** is based on the principles of current Term Ahead Market (TAM) and will offer trade through Intra-Day Contracts, Day ahead contingency Contracts, Daily Contracts and Weekly Contracts for both solar and non-Solar Renewable Energy (RE) generation. GTAM is a market-based mechanism, where RE surplus and RE deficit States can trade RE Power and balance their RPO targets.

10. **MCP** is the price discovered in each of the 15 Minute Time Block. The day is divided in 96-time blocks of 15 minutes each.

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