

I/32749/2023



भारत सरकार/ Government of India
विद्युत मंत्रालय/ Ministry of Power
केन्द्रीय विद्युत प्राधिकरण/ Central Electricity Authority
आर. ए. प्रभाग/ Regulatory Affairs Division

सेवा में /To

1. Secretary, Ministry of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi- 110001.
2. Secretary, Ministry of New & Renewable Energy, Atal Akshay Urja Bhawan, CGO Complex, Lodhi Road, New Delhi- 110003.
3. Secretary, CERC, Chanderlok Building, Janpath, New Delhi- 110001.

विषय: नवंबर, 2023 माह की मार्केट मॉनिटरिंग रिपोर्ट।

Subject: Monthly Market Monitoring Report for the month of November, 2023.

महोदय/ Sir,

नवंबर, 2023 माह के लिए केंद्रीय विद्युत प्राधिकरण द्वारा तैयार की गई मासिक मार्केट मॉनिटरिंग रिपोर्ट (MMMR) की एक प्रति सूचना और अवलोकन के लिए संलग्न है। A copy of the monthly market monitoring report (MMMR) prepared by Central Electricity Authority for the month of November, 2023 is enclosed herewith for kind information and perusal.

नवंबर, 2023 माह के दौरान मार्केट के संचालन की मुख्य विशेषताएं इस प्रकार रही। Key highlights of the market operation during November, 2023 are as under:

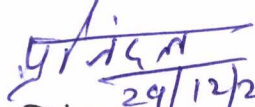
- (i) नवंबर, 2023 माह में देश में कुल 120,562 MU विद्युत का कारोबार किया गया, जिसमें से 59,939 MU का कारोबार अंतर्राज्यीय पारेषण प्रणाली (Inter State Transmission System) के माध्यम से किया गया था और शेष राज्य नियंत्रित उत्पादन स्टेशनों से अंतरराज्यीय पारेषण प्रणाली (Intra State Transmissions System) के माध्यम से किया गया। In the month of November, 2023 a total of 120,562 MU of electricity was transacted in the country out of which 59,939 MU was transacted through ISTS, and the remaining through state controlled generating stations through Intra State Transmissions System.
- (ii) अल्पावधि मार्केट के अंतर्गत कुल 15,873 MU का कारोबार किया गया था, जिसमें से 8,790 MU पावर एक्सचेंजों के माध्यम से कारोबार किया गया और शेष द्विपक्षीय कारोबार और विचलन (deviations) के रूप में

I/32749/2023

हुआ। इस प्रकार अल्पावधि कारोबार, नवंबर, 2023 माह में ट्रेड की गई विद्युत की कुल मात्रा का 13.17 % था और 7.29 % पावर एक्सचेंजों के माध्यम से रहा। A total of 15,873 MU was transacted under Short Term Market, out of which 8,790 MU was transacted through Power Exchanges and remaining happened as bilateral transactions & deviations. Thus, the total short term trade in November, 2023 was 13.17 % of total volume of electricity traded in November, 2023 and 7.29 % was through Power Exchanges.

- (iii) यदि हम अंतर्राज्यीय पारेषण प्रणाली (ISTS) के माध्यम से आपूर्ति की गई विद्युत के संबंध में इन कारोबारों की तुलना करते हैं, तो अल्पावधि कारोबार अंतर्राज्यीय पारेषण प्रणाली (ISTS) कारोबार का लगभग 26.48 % रहा, जिसमें से पावर एक्सचेंजों के माध्यम से कारोबार 14.67 % रहा। If we compare these transactions with respect to the electricity supplied through ISTS, the short term transactions constitutes about 26.48 % of ISTS transactions, out of which transaction through the power exchanges constitutes 14.67 %.

भवदीय/ Yours faithfully,


(प्रदीप जिंदल/ Pardeep Jindal)

मुख्य अभियंता (आर.ए.)/ Chief Engineer (RA)

प्रतिलिपि/ Copy for information, through email, to:

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7. COO, Hindustan Power Exchange Limited (HPX), World Trade Tower, 8th Floor, Sector 16, Noida, Uttar Pradesh – 201301.

CEA website (<https://cea.nic.in/market-monitoring-report/?lang=en>)



मासिक मार्केट मॉनिटरिंग रिपोर्ट - नवंबर, 2023

Monthly Market Monitoring Report November, 2023



भारत सरकार/ Government of India

विद्युत मंत्रालय/ Ministry of Power

केन्द्रीय विद्युत प्राधिकरण/ Central Electricity Authority

आर. ए. प्रभाग/ Regulatory Affairs Division

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**नवंबर, 2023 की मासिक मार्केट
मॉनिटरिंग रिपोर्ट का सारांश**

**Summary of Market Monitoring Report
For the month of November, 2023**

नवंबर, 2023 माह के लिए सारांश Summary for Month: November, 2023

भारत में विद्युत एक्सचेंजों पर विद्युत के व्यापार का सारांश

Summary of Electricity Transactions on Power Exchanges in India

- नवंबर, 2023 के दौरान विद्युत एक्सचेंजों (यानी आईईएक्स, पीएक्सआईएल और एचपीएक्स) के माध्यम से कुल **8,790 MU** विद्युत का कारोबार किया गया। विद्युत की यह मात्रा डिलीवरी की तारीख के आधार पर है और इसमें DAM, GDAM, HP-DAM, RTM, TAM, HP-TAM, DAC & ID, HP-DAC & ID, GTAM और G-DAC & ID मार्केट खंडों के माध्यम से कारोबार शामिल हैं।

A total volume of **8,790 MU** electricity was transacted through power exchanges i.e. IEX, PXIL & HPX, during the month of November, 2023. This volume of electricity is on delivery date basis and includes transactions through DAM, GDAM, HP-DAM, RTM, TAM, HP-TAM, DAC & ID, HP-DAC & ID, GTAM and G-DAC & ID market segments.

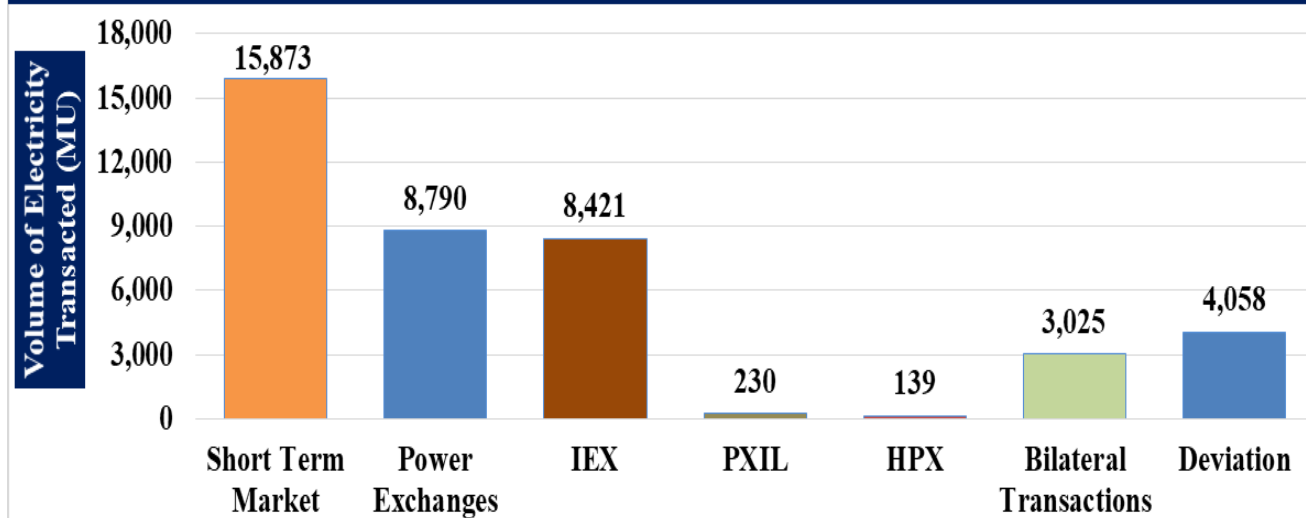
Segment	Transactions happened in the PXs (IEX, PXIL & HPX combined)			
	FSV (MU)	Average MCP (₹/kWh)	Congestion (MU)	Real Time Curtailment (MU)
DAM	5,201	4.17	0.00	0.00
GDAM	180	4.69	0.00	0.00
HP-DAM	0	-	0.00	0.00
RTM	2,359	3.93	0.00	0.00
TAM	915	7.37	0.00	9.68
HP-TAM	0	-	0.00	0.00
DAC & ID	120	7.46	0.00	0.04
HP-DAC & ID	0	-	0.00	0.00
GTAM	7	6.40	0.00	0.00
G-DAC & ID	8	5.40	0.00	0.00
Total in PXs	8,790	4.49*	0.00	9.72

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

- द्विपक्षीय व्यापार के तहत कुल **3,025 MU** विद्युत का कारोबार किया गया और **4,058 MU** को विचलन के रूप में लेनदेन किया गया। इस प्रकार कुल **15,873 MU** विद्युत का कारोबार अल्पावधि व्यापार के रूप में किया गया था। नवंबर, 2023 के महीने में देश में कुल **120,562 MU** विद्युत की आपूर्ति की गई थी, इस प्रकार नवंबर, 2023 माह में कारोबार की गई विद्युत की कुल मात्रा में अल्पावधि बाजार का हिस्सा **13.17 %** था।

Under the Bilateral trade, a total of **3,025 MU** of electricity was transacted and **4,058 MU** was transacted as deviation. Thus, a total of **15,873 MU** of electricity was transacted as short term trade. In November, 2023, a total of **120,562 MU** of electricity was supplied in the country, thus, the share of short term market in the total volume of electricity supplied in November, 2023 was **13.17 %**.

Comparison of total volume of electricity transacted in Short Term Market, through the PXs together, IEX, PXIL, HPX, Bilateral Transactions and Deviations during November, 2023



- नवंबर, 2023 के दौरान कोई संचरण जाम नहीं था।

There was **no** transmission congestion during the month of November, 2023.

नवंबर, 2023 माह के महीने में रिपोर्ट की गई वास्तविक समय में विद्युत कटौती की कुल मात्रा केवल **9.72 MU** थी।

The total volume of real time curtailment reported in November, 2023 was only **9.72 MU**.

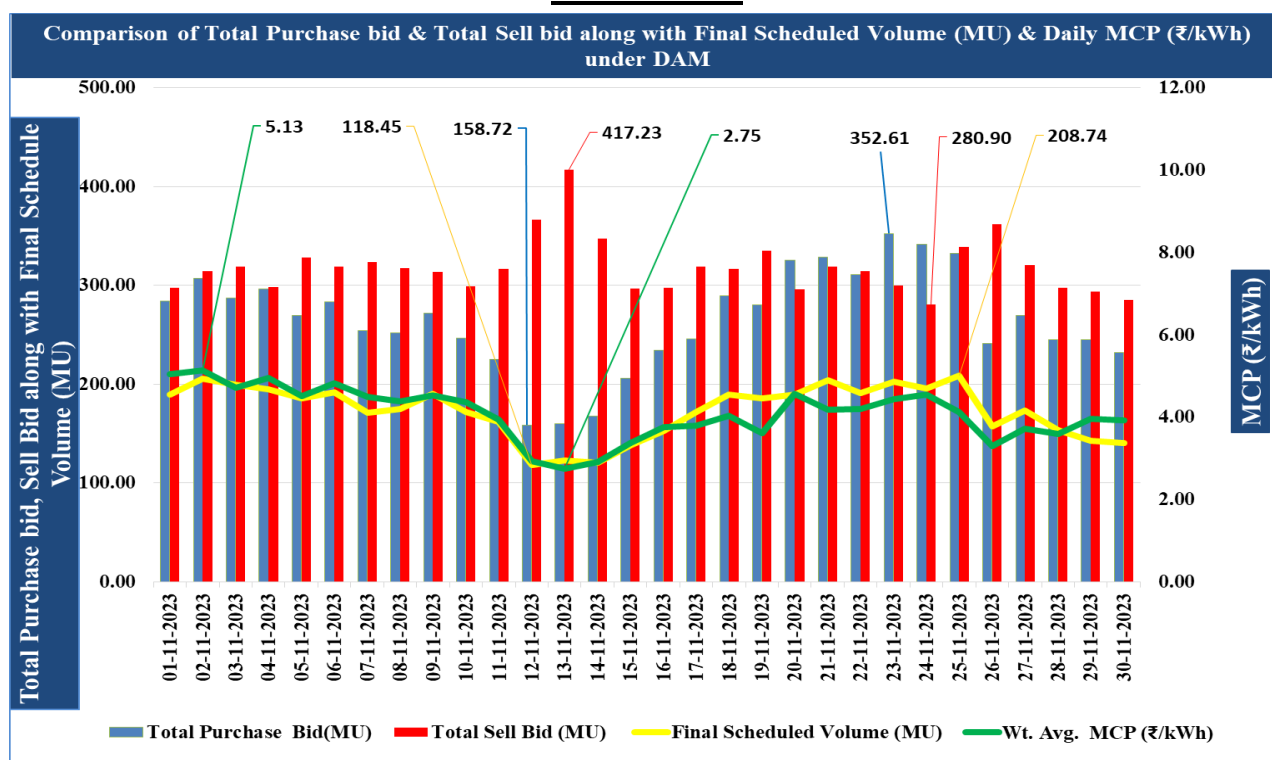
- नवंबर, 2023 माह के दौरान अंतर्राज्यीय पारेषण प्रणाली (ISTS) में निर्धारित अनुसूचित विद्युत की कुल मात्रा **59,939 MU** थी। नवंबर, 2023 के महीने में अल्पावधि बाजार में विद्युत का लेन-देन अंतर्राज्यीय पारेषण प्रणाली (ISTS) के माध्यम से अनुसूचित की गई कुल विद्युत की मात्रा का **26.48 %** रहा।

The total volume of electricity scheduled at ISTS during the month of November, 2023 was **59,939 MU**. The total volume of electricity transacted in the short term market was **26.48 %** of total volume schedule at ISTS in November, 2023.

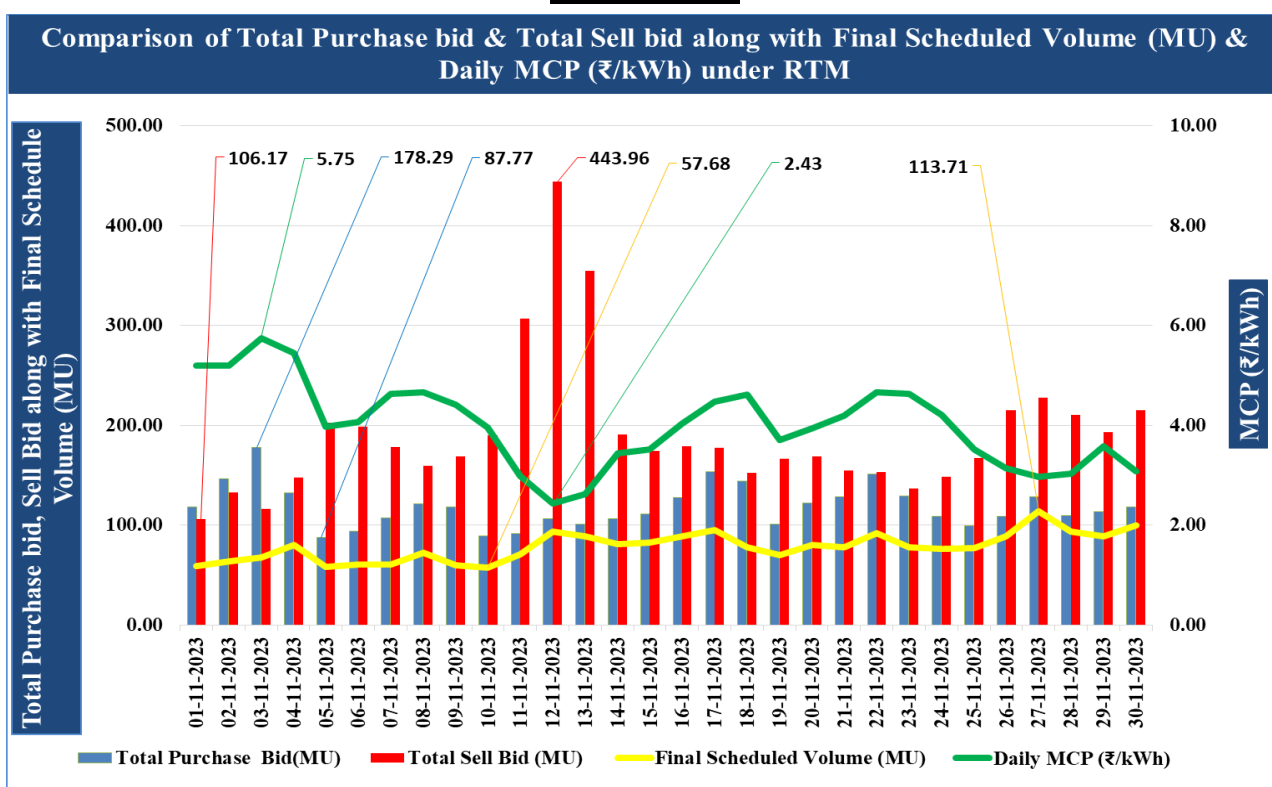
- नवंबर, 2023 माह के दौरान DAM और RTM में विद्युत की खरीद और बिक्री बोलियों, अंतिम अनुसूचित मात्रा और दैनिक औसत MCP की भिन्नता निम्नलिखित चित्रों में दर्शाई गई है:

The variation of Purchase and Sell bids, Final Scheduled Volume and Daily Avg. MCP under DAM and RTM during the month of November, 2023 are shown in following figures:

DAM Volume



RTM Volume

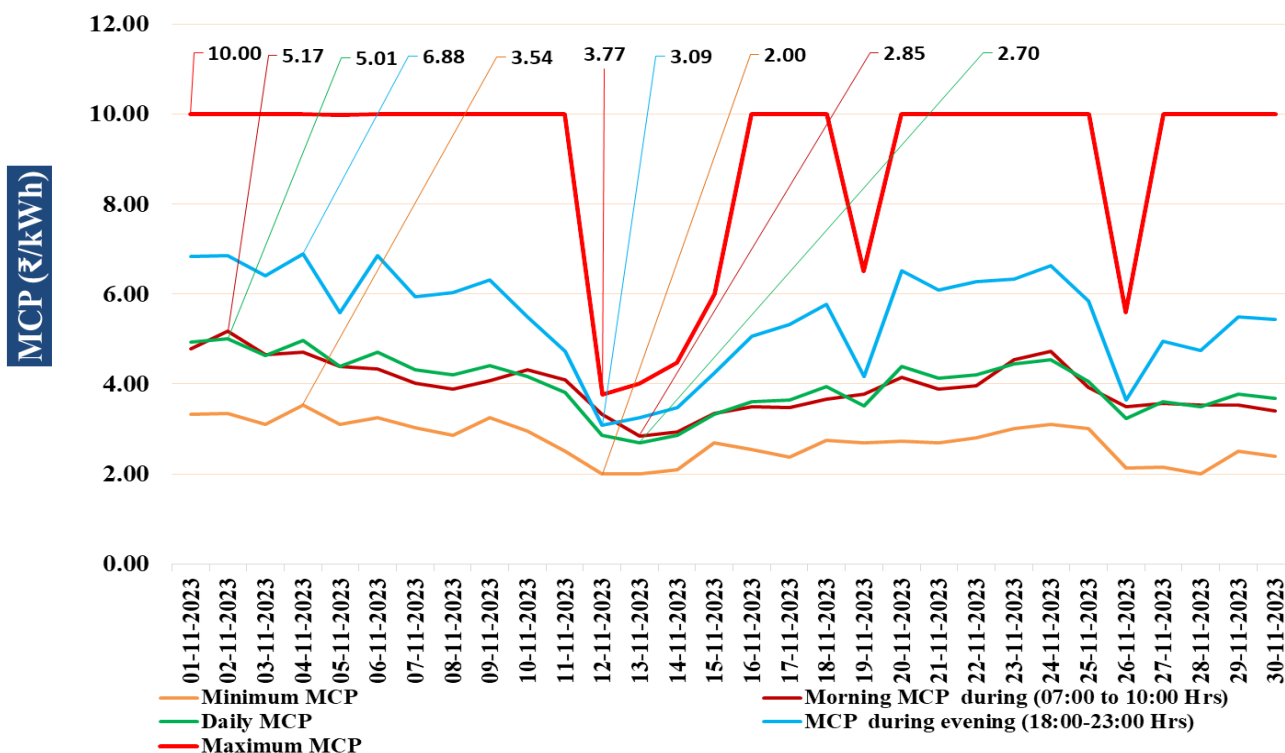


- नवंबर, 2023 माह के दौरान DAM और RTM में अधिकतम, न्यूनतम, दैनिक, सुबह और शाम के समय MCP की भिन्नता निम्नलिखित चित्रों में दिखाई गई है:

The variation of Maximum, Minimum, Daily, Morning and Evening time MCPs under DAM and RTM during the month of November, 2023 are shown in following figures:

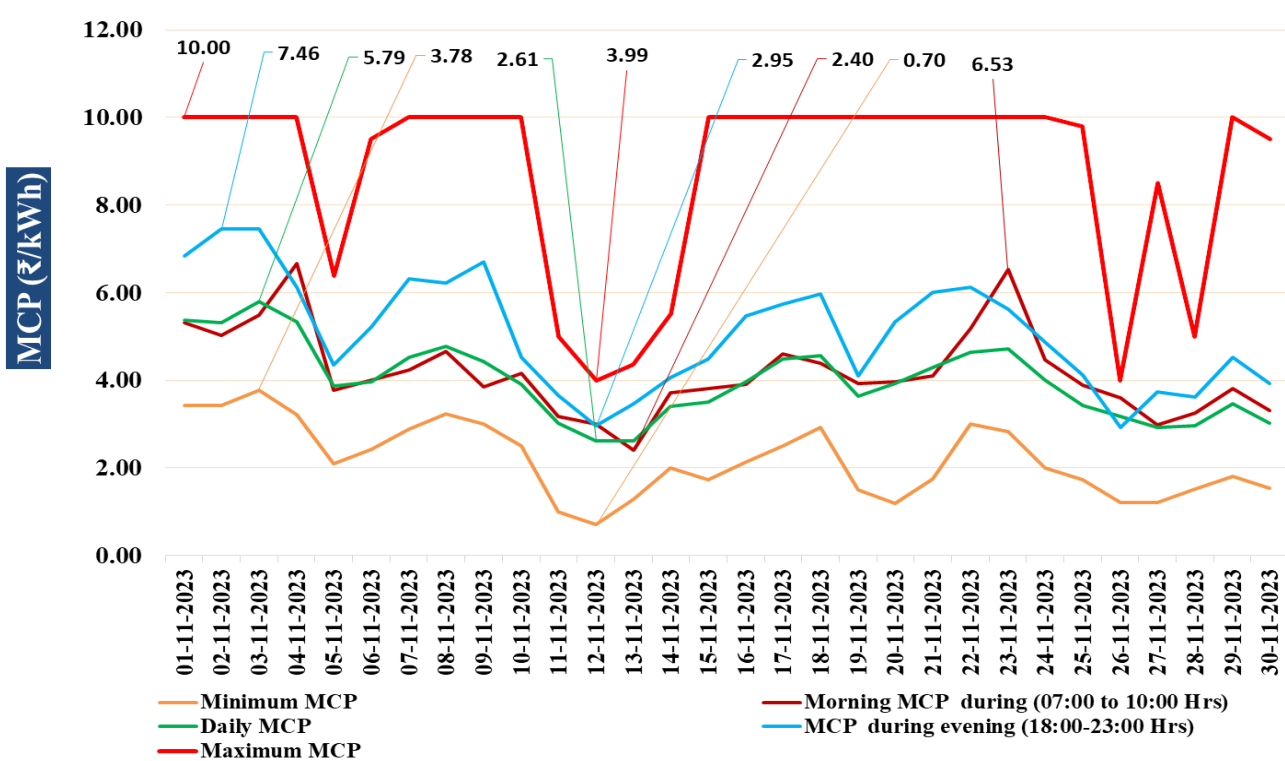
DAM Prices

Comparison of Maximum, Minimum, Daily, Morning time and Evening time MCP (₹/kWh) under DAM



RTM Prices

Comparison of Maximum, Minimum, Daily, Morning time and Evening time MCP (₹/kWh) under RTM



MARKET MONITORING REPORT DETAILS

Electricity Transactions on Power Exchanges in India

1. Day Ahead Market (DAM)

- 1.1.** The total volume of electricity transacted on the power exchanges, viz., IEX, PXIL and HPX in the Day Ahead Market (DAM) in November, 2023 was **5,201.43 MU**. The total energy supplied in the country during the month of November, 2023 was 120,562 MU. Thus, the volume of electricity transacted on the power exchanges under DAM during November, 2023 was 4.31 % of the total energy supplied in the country. Comparing with the total volume of electricity transacted under DAM during last month October, 2023 i.e. **4,746.78 MU** which was 3.40 % of the total energy supplied (139,441 MU) in the country during October, 2023. Similarly, the total volume of electricity transacted under DAM during previous year i.e. November, 2022, was **5,083.85 MU** which was 4.61 % of the total energy supplied (110,252 MU) in the country during November, 2022.
- 1.2.** The volume of electricity transacted on IEX, PXIL and HPX during November, 2023 were **5196.16 MU, 3.12 MU and 2.15 MU**, respectively. The volume of electricity transacted on IEX, PXIL and HPX during October, 2023 were **4688.35 MU, 21.60 MU and 36.83 MU**, respectively. The volume of electricity transacted on IEX during November, 2022 was **5083.85 MU** and no transaction of electricity took place in PXIL & HPX during November, 2022.
- 1.3.** The DAM volume for November, 2023 in IEX is inclusive of Cross Border Transactions of Electricity with Nepal and Bhutan (details given at **Annexure XII**), which was **271.11 MU** (i.e. 262.68 MU sold by Nepal, 8.43 MU sold by Bhutan).
- 1.4.** The Average Market Clearing Price (MCP) on IEX during the month of November, 2023 was **₹ 4.16/kWh**, which shows a decrease of 34.59 % & 13.15 % when compared with average MCP's for the month of October, 2023 and November, 2022, which were **₹ 6.36/kWh** and **₹ 4.79/kWh**, respectively. On PXIL, the average MCP during the month of November, 2023 was **₹ 9.36/kWh**, which shows a decrease of 6.40 % when compared with average MCP's for the month of October, 2023, which was **₹ 10.00/kWh** and no transaction of electricity took place in PXIL during November, 2022. On HPX, the average MCP during the month of November, 2023 was **₹ 10.00/kWh**, which shows no change when compared with average MCP's for the month of October, 2023, which was **₹ 10.00/kWh** and no transaction of electricity took place in HPX during November, 2022.
- 1.5.** The maximum Area Clearing Price (ACP) of ₹ 10.00/kWh in IEX was observed in all 13 regions during 155 time blocks on 1st to 4th, 6th to 11th, 16th to 18th, 20th to 25th & 27th to 30th November, 2023. As there was no congestion in transmission system, the MCP for these time blocks was also ₹ 10.00/kWh. Whereas, in PXIL, the maximum ACP of ₹ 10.00/kWh was observed in all 13 regions during 45 time blocks on 1st to 3rd & 6th to 8th November, 2023. As there was no congestion

in transmission system, the MCP for these time blocks was also ₹ 10.00/kWh. Further, in HPX, the maximum ACP of ₹ 10.00/kWh was observed in all 13 regions during 87 time blocks on 2nd, 3rd, 6th to 10th, 20th to 24th & 28th November, 2023. As there was no congestion in transmission system, the MCP for these time blocks was also ₹ 10.00/kWh.

1.6. The minimum ACP of ₹ 2.00/kWh in IEX was observed in all 13 regions during the time block 13:30 - 13:45 Hrs on 13th November, 2023. As there was no congestion in transmission system, the MCP for this time-block was also ₹ 2.00/kWh. Whereas, in PXIL, the minimum ACP of ₹ 1.00/kWh was observed in all 13 regions during the time block 19:15-19:30 Hrs on 29th November, 2023. As there was no congestion in transmission system, the MCP for these time blocks was also ₹ 1.00/kWh. Further, in HPX, the minimum ACP of ₹ 10.00/kWh was observed in all 13 regions during 87 time blocks on 2nd, 3rd, 6th to 10th, 20th to 24th & 28th November, 2023.

1.7. Final Scheduled Volume (FSV), Daily Avg. Market Clearing Prices (MCP), Area Clearing Prices (ACP) under Day Ahead Market during the month of November, 2023 as compared with October, 2023 and November, 2022 are shown in Table- 1A & 1B:

(i) Final Scheduled Volume:

Exchange	Period	Final Scheduled Volume (MU)			
		Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
IEX	November, 2023*	5196.16	118.45	208.74	173.21
	October, 2023*	4688.35	107.33	202.87	151.24
	%Change (Month over Month)	10.83	10.36	2.89	14.53
	November, 2022*	5083.85	153.34	192.41	169.46
	%Change (Year over Year)	2.21	-22.75	8.49	2.21
PXIL	November, 2023	3.12	0.09	0.80	0.39
	October, 2023	21.60	0.10	7.29	1.96
	%Change (Month over Month)	-85.56	-10.00	-89.03	-80.10
	November, 2022	-	-	-	-
	%Change (Year over Year)	NA	NA	NA	NA
HPX	November, 2023	2.15	0.09	0.28	0.17
	October, 2023	36.83	0.40	7.73	4.60
	%Change (Month over Month)	-94.16	-77.50	-96.38	-96.30
	November, 2022	-	-	-	-
	%Change (Year over Year)	NA	NA	NA	NA

-: No transaction took place

NA: Not Applicable

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

Table: 1A

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

Exchange	Period	Prices (₹/kWh)				
		Daily MCP (₹/kWh)		ACP (₹/kWh)		Monthly Avg. MCP (₹/kWh)
		Minimum	Maximum	Minimum	Maximum	Average
IEX	November, 2023	2.75	5.13	2.00	10.00	4.16
	October, 2023	3.50	10.00	1.50	10.00	6.36
	%Change (Month over Month)	-21.43	-48.70	33.33	0.00	-34.59
	November, 2022	3.92	5.36	2.71	12.00	4.79
	%Change (Year over Year)	-29.85	-4.29	-26.20	-16.67	-13.15
PXIL	November, 2023	3.18	10.00	1.00	10.00	9.36
	October, 2023	10.00	10.00	10.00	10.00	10.00
	%Change (Month over Month)	-68.20	0.00	-90.00	0.00	-6.40
	November, 2022	-	-	-	-	-
	%Change (Year over Year)	NA	NA	NA	NA	NA
HPX	November, 2023	10.00	10.00	10.00	10.00	10.00
	October, 2023	10.00	10.00	10.00	10.00	10.00
	%Change (Month over Month)	0.00	0.00	0.00	0.00	0.00
	November, 2022	-	-	-	-	-
	%Change (Year over Year)	NA	NA	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table: 1B

2. Real Time Market (RTM)

- 2.1. The total volume of electricity transacted on the power exchanges under Real Time Market in November, 2023 was **2,359.17 MU**, out of which **2,359.07 MU** (99.996 %) was transacted in IEX and **0.10 MU** (0.004 %) was transacted in HPX. No transaction of electricity took place in PXIL during November, 2023.
- 2.2. The RTM volume for November, 2023 in IEX is inclusive of Cross Border Transactions of Electricity with Nepal and Bhutan (details given at **Annexure XIII**), which was **11.53 MU** (i.e. 11.53 MU sold by Nepal only).
- 2.3. The Final Scheduled Volume (FSV), Daily Avg. Market Clearing Prices (MCP) and Area Clearing Prices (ACP) under Real Time Market during the month of November, 2023 as compared with October, 2023 and November, 2022 are shown in Table- 2A & 2B:

(i) Final Scheduled Volume:

Exchange	Period	Final Scheduled Volume (MU)			
		Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
IEX	November, 2023*	2359.07	57.68	113.71	78.64
	October, 2023	2402.26	52.39	116.38	77.49
	% Change (Month over Month)	-1.80	10.10	-2.29	1.48
	November, 2022	1406.88	34.85	58.78	46.90
	% Change (Year over Year)	67.68	65.51	93.45	67.68
PXIL	November, 2023	-	-	-	-
	October, 2023	25.42	0.10	9.50	2.54
	% Change (Month over Month)	NA	NA	NA	NA
	November, 2022	-	-	-	-
	% Change (Year over Year)	NA	NA	NA	NA
HPX	November, 2023	0.10	0.10	0.10	0.10
	October, 2023	14.71	0.13	7.69	2.10
	% Change (Month over Month)	-99.32	-23.08	-98.70	-95.24
	November, 2022	-	-	-	-
	% Change (Year over Year)	NA	NA	NA	NA

-: No transaction took place

NA: Not Applicable

*** RTM Volume in IEX is inclusive of Cross Border Transactions of Electricity with Nepal and Bhutan**

Table-2A

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

Exchange	Period	Prices (₹/kWh)				
		Daily MCP (₹/kWh)		ACP (₹/kWh)		Monthly Avg. MCP (₹/kWh)
		Minimum	Maximum	Minimum	Maximum	Average
IEX	November, 2023	2.43	5.75	0.70	10.00	3.93
	October, 2023	3.35	10.00	1.75	10.00	5.99
	% Change (Month over Month)	-27.46	-42.50	-60.00	0.00	-34.39
	November, 2022	4.15	5.81	2.00	12.00	4.94
	% Change (Year over Year)	-41.45	-1.03	-65.00	-16.67	-20.45
PXIL	November, 2023	-	-	-	-	-
	October, 2023	10.00	10.00	10.00	10.00	10.00
	% Change (Month over Month)	NA	NA	NA	NA	NA
	November, 2022	-	-	-	-	-
	% Change (Year over Year)	NA	NA	NA	NA	NA
HPX	November, 2023	10.00	10.00	10.00	10.00	10.00
	October, 2023	10.00	10.00	10.00	10.00	10.00
	% Change (Month over Month)	0.00	0.00	0.00	0.00	0.00
	November, 2022	-	-	-	-	-
	% Change (Year over Year)	NA	NA	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table-2B

3. Green Day Ahead Market (GDAM):

- 3.1. The volume of electricity transacted under GDAM in November, 2023 was **180.27 MU (58.62 MU in Solar, 104.54 MU in Non-Solar and 17.11 MU in Hydro)** in IEX at an average MCP of ₹ **4.69/kWh** and no transaction took place in PXIL & HPX under GDAM.
- 3.2. There was no real time curtailment in the power exchanges under Green Day Ahead Market during the month of November, 2023, October, 2023 and November, 2022.
- 3.3. The **top 10 sellers** on the power exchanges under Green Day Ahead Market (GDAM) in November, 2023 were **ADANI WIND ENERGY KUTCHH FOUR Ltd. Nakhatrana, Ostro Kannada Power Private Limited, Renew Surya Ravi Private Limited (solar), ADANI SOLAR ENERGY JAISALMER TWO PRIVATE LIMITED(Project-2), Singoli Bhagwati, Telangana, Continuum Power Trading (TN) Private Limited, Sikkim, Ramagundam Floating Solar PV Station and J&K**, which constituted **67.84 %** of the market volume.
- 3.4. The **top 10 buyers** on the power exchanges under Green Day Ahead Market (GDAM) in November, 2023 were **ArcelorMittal Nippon steel (ESIL), Tamil Nadu, BHARAT ALUMINIUM COMPANY LTD (Bulk Consumer), Delhi, Rajasthan, DVC, Maharashtra, Kerala, ACBIL and Uttar Pradesh**, which constituted **91.70 %** of the market volume.
- 3.5. The Final Scheduled Volume (FSV), Daily Avg. Market Clearing Prices (MCP), Area Clearing Prices (ACP), Real Time Curtailment and details of Transmission Congestion under three segments (i.e. Solar, Non Solar and Hydro) under Green Day Ahead Market during the month of November, 2023 and its comparison with October, 2023 and November, 2022 are shown in Table-3A & 3B:

(i) Final Scheduled Volume :

Exchange	Segment	Period	Final Scheduled Volume (MU)			
			Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
IEX	Solar	November, 2023	58.62	0.98	3.86	1.95
		October, 2023	57.14	0.11	3.25	1.84
		% Change (Month over Month)	2.59	790.91	18.77	5.98
		November, 2022	72.59	0.52	5.16	2.42
		%Change (Year over Year)	-19.25	88.46	-25.19	-19.42
	Non Solar	November, 2023	104.54	1.42	6.00	3.48
		October, 2023	104.46	2.30	5.13	3.37
		% Change (Month over Month)	0.08	-38.26	16.96	3.26
		November, 2022	215.74	5.62	9.12	7.19
		%Change (Year over Year)	-51.54	-74.73	-34.21	-51.60
	Hydro	November, 2023	17.11	0.33	0.95	0.57
		October, 2023	22.00	0.06	2.11	0.81
		% Change (Month over Month)	-22.23	450.00	-54.98	-29.63
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA

Exchange	Segment	Period	Final Scheduled Volume (MU)			
			Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
PXIL	Solar, Non Solar and Hydro	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		% Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		% Change (Year over Year)	NA	NA	NA	NA
HPX	Solar, Non Solar and Hydro	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		% Change (Month over Month)	NA	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table-3A

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

Exchange	Segment	Period	Prices (₹/kWh)				
			Daily MCP (₹/kWh)		ACP (₹/kWh)		Monthly Avg. MCP (₹/kWh)
			Minimum	Maximum	Minimum	Maximum	Average
IEX	Solar, Non Solar and Hydro	November, 2023	4.04	5.74	3.25	10.00	4.69
		October, 2023	4.64	10.00	1.70	10.00	6.37
		% Change (Month over Month)	-12.93	-42.60	91.18	0.00	-26.37
		November, 2022	4.08	6.08	2.71	12.00	4.90
		% Change (Year over Year)	-0.98	-5.59	19.93	-16.67	-4.29
PXIL	Solar, Non Solar and Hydro	November, 2023	-	-	-	-	-
		October, 2023	-	-	-	-	-
		% Change (Month over Month)	NA	NA	NA	NA	NA
		November, 2022	-	-	-	-	-
		% Change (Year over Year)	NA	NA	NA	NA	NA
HPX	Solar, Non Solar and Hydro	November, 2023	-	-	-	-	-
		October, 2023	-	-	-	-	-
		% Change (Month over Month)	NA	NA	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table-3B

4. Term Ahead Market (TAM)

- 4.1. The total volume of electricity transacted on the power exchanges under Term Ahead Market in November, 2023 on delivery date basis was **915.37 MU**, out of which **642.96 MU** (70.24 %) was transacted on IEX, **153.00 MU** (16.71 %) was transacted on PXIL and **119.41 MU** (13.04 %) was transacted on HPX.
- 4.2. The total volume of electricity transacted on the power exchanges under Term Ahead Market in October, 2023 on delivery date basis was **3130.57 MU**, out of which **1677.00 MU** (53.57 %) was transacted on IEX, **611.28 MU** (19.53 %) was transacted on PXIL and **842.29 MU** (26.91 %) was transacted on HPX.
- 4.3. Similarly, the total volume of electricity transacted on the power exchanges under Term Ahead Market in November, 2022 on delivery date basis was **538.80 MU**, out of which **218.40 MU** (40.53 %) was transacted on IEX and **320.40 MU** (59.47 %) was transacted on PXIL. No transaction of electricity took place in HPX.
- 4.4. With respect to the total energy supplied during the month of November, 2023 in the country, the volume of electricity traded on the power exchanges under TAM on delivery date basis represents **0.76 %** of the total energy supplied. The same was **2.25 %** in October, 2023 and **0.49 %** in November, 2022.
- 4.5. In November, 2023, there was no transmission congestion in IEX, PXIL & HPX under TAM.
- 4.6. In November, 2023, there was real time curtailment of **9.68 MU** under TAM, Out of which **1.57 MU** was under Daily-Anyday contract, **4.54 MU** was under Weekly contract and **2.03 MU** was under Anyday Single Sided contract in IEX. Whereas, in PXIL, there was real time curtailment of **1.22 MU** under Daily-Anyday contract. Whereas, in HPX, there was real time curtailment of **0.03 MU** under Daily-Anyday contract and **0.29 MU** under Anyday Single Sided contract under TAM.
- 4.7. The comparison of total volume of electricity transacted and Average MCP in the power exchanges under Term Ahead Market (TAM) on delivery date basis during November, 2023 with October, 2023 and November, 2022 are shown in Table – 4A & 4B:

(i) Final Scheduled Volume (MU), November, 2023 vis- a- vis October, 2023 and November, 2022

Exchange	Period	Final Scheduled Volume (MU)				
		Daily or Any Day	Weekly	Monthly	Anyday Single Side	Total
IEX	November, 2023	290.58	45.86	-	306.52	642.96
	October, 2023	390.32	246.96	230.48	809.24	1677.00
	%Change (Month over Month)	-25.55	-81.43	NA	-62.12	-61.66
	November, 2022	144.00	55.20	-	19.20	218.40
	%Change (Year over Year)	101.79	-16.92	NA	1496.46	194.40
PXIL	November, 2023	75.97	-	60.08	16.95	153.00
	October, 2023	392.41	41.79	-	177.08	611.28

Exchange	Period	Final Scheduled Volume (MU)				
		Daily or Any Day	Weekly	Monthly	Anyday Single Side	Total
	%Change (Month over Month)	-80.64	NA	NA	-90.43	-74.97
	November, 2022	42.00	98.40	-	180.00	320.40
	%Change (Year over Year)	80.88	NA	NA	-90.58	-52.25
HPX	November, 2023	42.10	-	-	77.31	119.41
	October, 2023	438.92	86.35	-	317.02	842.29
	%Change (Month over Month)	-90.41	NA	NA	-75.61	-85.82
	November, 2022	-	-	-	-	-
	%Change (Year over Year)	NA	NA	NA	NA	NA

- : No transaction took place

NA: Not Applicable

Table: 4A

(ii) Average MCP, November, 2023 vis- a- vis October, 2023 and November, 2022

Exchange	Period	Average MCP (₹/kWh)			
		Daily or Any Day	Weekly	Monthly	Anyday Single Side
IEX	November, 2023	5.94	5.75	-	7.99
	October, 2023	9.18	8.95	7.07	7.36
	%Change (Month over Month)	-35.29	-35.75	NA	8.56
	November, 2022	4.50	4.56	-	-
	%Change Year over Year)	32.00	26.10	NA	NA
PXIL	November, 2023	8.22	-	9.43	8.40
	October, 2023	9.81	9.67	-	8.52
	%Change (Month over Month)	-16.21	NA	NA	-1.41
	November, 2022	4.59	4.59	-	4.00
	%Change (Year over Year)	79.08	NA	NA	110.00
HPX	November, 2023	5.63	-	-	9.49
	October, 2023	9.92	7.56	-	7.53
	%Change (Month over Month)	-43.25	NA	NA	26.03
	November, 2022	-	-	-	-
	%Change Year over Year)	NA	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table: 4B

5. Day Ahead Contingency & Intra Day (DAC & ID)

- 5.1. The total volume of electricity transacted in the IEX, PXIL & HPX under DAC & ID on delivery date basis during November, 2023 was **119.93 MU**.
- 5.2. In November, 2023, there was no transmission congestion in IEX, PXIL and HPX under DAC & ID.
- 5.3. In November, 2023, there was real time curtailment of **0.04 MU** under Day Ahead Contingency contract in HPX under DAC & ID.
- 5.4. The total volume of electricity transacted under DAC & ID under Day Ahead Contingency & Intra Day contracts during November, 2023 and its comparison with October, 2023 and November, 2022 on delivery date basis are shown in Tables- 5A & 5B:

(i) Final Scheduled Volume (MU), November, 2023 vis- a- vis October, 2023 and November, 2022

Exchange	Period	Final Scheduled Volume (MU)		
		Day Ahead Contingency	Intra Day	Total
IEX	November, 2023	36.07	0.10	36.17
	October, 2023	229.85	4.22	234.07
	%Change (Month over Month)	-84.31	-97.63	-84.55
	November, 2022	328.93	-	328.93
	%Change (Year over Year)	-89.03	NA	-89.00
PXIL	November, 2023	72.98	0.70	73.68
	October, 2023	302.08	12.88	314.96
	%Change (Month over Month)	-75.84	-94.57	-76.61
	November, 2022	170.22	1.51	171.73
	%Change (Year over Year)	-57.13	-53.64	-57.10
HPX	November, 2023	8.55	1.53	10.08
	October, 2023	257.55	7.93	265.48
	%Change (Month over Month)	-96.68	-80.71	-96.20
	November, 2022	155.43	-	155.43
	%Change (Year over Year)	-94.50	NA	-93.51

- : No transaction took place

NA: Not Applicable

Table: 5A

(ii) Average MCP, November, 2023 vis- a- vis October, 2023 and November, 2022

Exchange	Period	Average MCP (₹/kWh)	
		Day Ahead Contingency	Intra Day
IEX	November, 2023	5.17	10.00
	October, 2023	8.66	9.79
	%Change (Month over Month)	-40.30	2.15
	November, 2022	4.83	-

Exchange	Period	Average MCP (₹/kWh)	
		Day Ahead Contingency	Intra Day
	%Change Year over Year)	7.04	NA
PXIL	November, 2023	8.28	10.00
	October, 2023	9.19	9.35
	%Change (Month over Month)	-9.90	6.95
	November, 2022	5.29	5.13
	%Change (Year over Year)	56.52	94.93
HPX	November, 2023	9.37	10.00
	October, 2023	9.13	9.99
	%Change (Month over Month)	2.63	0.10
	November, 2022	4.98	-
	%Change Year over Year)	88.15	NA

- : No transaction took place

NA: Not Applicable

Table: 5B

6. Green Term Ahead Market (GTAM):

The total volume of electricity transacted in the IEX under GTAM on delivery date basis during November, 2023 was **6.77 MU** in Non-Solar only. Whereas, no transactions took place in PXIL & HPX under GTAM.

The total volume of electricity transacted under GTAM in Daily/ Anyday, Weekly, Monthly and Anyday Single Side contracts during November, 2023 and its comparison with October, 2023 and November, 2022 on delivery date basis are shown in tables 6A to 6F.

6.1. Solar Energy Segment under GTAM

The Final Scheduled Volume and the Price of electricity transacted under GTAM (Solar) in Power Exchanges during November, 2023 and its comparison with October, 2023 and November, 2022 are shown in Table- 6A & 6B:

(i) Final Scheduled Volume:

Exchange	Solar Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
IEX	Daily/Anyday	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change Month over Month)	NA	NA	NA	NA
		November, 2022	10.50	0.35	0.35	0.35
		%Change (Year over Year)	NA	NA	NA	NA
	Weekly	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Monthly	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Anyday Single Side	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
PXIL	Daily/Anyday	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-

Exchange	Solar Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
		%Change (Year over Year)	NA	NA	NA	NA
		November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
		November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
		November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
HPX	Daily/Anyday	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
	Weekly	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
	Monthly	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
	Anyday Single Side	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA

:- No transaction took place

NA: Not Applicable

Table-6A

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

Exchange	Solar Energy Contract	Period	Prices(₹/kWh)		
			Minimum	Maximum	Average
IEX	Daily/Anyday	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	4.50	4.50	4.50

Exchange	Solar Energy Contract	Period	Prices(₹/kWh)		
			Minimum	Maximum	Average
	Weekly	%Change (Year over Year)	NA	NA	NA
		November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Monthly	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Anyday Single Side	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
PXIL	Daily/Anyday	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Weekly	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Monthly	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Anyday Single Side	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
HPX	Daily/Anyday	November, 2023	-	-	-
		October, 2023	-	-	-

Exchange	Solar Energy Contract	Period	Prices(₹/kWh)		
			Minimum	Maximum	Average
		%Change (Month over Month)	NA	NA	NA
	Weekly	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
	Monthly	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
	Anyday Single Side	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table-6B

6.1.1. In November, 2023, there was no transaction under GTAM (Solar) in IEX, PXIL & HPX.

6.2. Non-Solar Energy Segment under GTAM

The Final Scheduled Volume and the Price of electricity transacted under GTAM (Non-Solar) in Power Exchanges during November, 2023 and its comparison with October, 2023 and November, 2022 are shown in Table- 6C & 6D:

(i) Final Scheduled Volume:

Exchange	Non- Solar Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
IEX	Daily/Anyday	November, 2023	6.77	0.19	0.24	0.23
		October, 2023	7.03	0.17	0.26	0.23
		%Change (Month over Month)	-3.70	11.76	-7.69	0.00
		November, 2022	2.16	0.07	0.07	0.07
		%Change (Year over Year)	213.43	171.43	242.86	228.57
	Weekly	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Monthly	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
		November, 2023	-	-	-	-

Exchange	Non- Solar Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
PXIL	Anyday Single Side	October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Daily/Anyday	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Weekly	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Monthly	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Anyday Single Side	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
HPX	Daily/Anyday	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
	Weekly	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
	Monthly	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
	Anyday Single Side	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table - 6C

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

Exchange	Non- Solar Energy Contract	Period	Prices(₹/kWh)		
			Minimum	Maximum	Average
IEX	Daily/Anyday	November, 2023	6.40	6.40	6.40
		October, 2023	6.50	6.55	6.54
		%Change (Month over Month)	-1.54	-2.29	-2.14
		November, 2022	5.73	5.73	5.73
		%Change (Year over Year)	11.69	11.69	11.69
	Weekly	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Monthly	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Anyday Single Side	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
PXIL	Daily/Anyday	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Weekly	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Monthly	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA

Exchange	Non- Solar Energy Contract	Period	Prices(₹/kWh)		
			Minimum	Maximum	Average
	Anyday Single Side	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
HPX	Daily/Anyday	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
	Weekly	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
	Monthly	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
	Anyday Single Side	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table - 6D

6.2.1. In November, 2023, there was no transmission congestion in IEX. There was no transaction in PXIL and HPX under GTAM (Non Solar).

6.2.2. In November, 2023, there was no real time curtailment in IEX. There was no transaction in PXIL and HPX under GTAM (Non Solar).

6.3 Hydro Energy Segment under GTAM

The Final Scheduled Volume and the Price of electricity transacted under GTAM (Hydro) in Power Exchanges during November, 2023 and its comparison with October, 2023 and November, 2022 are shown in Table- 6E & 6F:

(i) Final Scheduled Volume:

Exchange	Hydro Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
IEX	Daily/Anyday	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA

Exchange	Hydro Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
	Weekly	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Monthly	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Anyday Single Side	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
PXIL	Daily/Anyday	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Weekly	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Monthly	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Anyday Single Side	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
HPX	Daily/Anyday	November, 2023	-	-	-	-

Exchange	Hydro Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
	Weekly	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
	Monthly	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
	Anyday Single Side	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA

:- No transaction took place

NA: Not Applicable

Table: 6E

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

Exchange	Hydro Energy Contract	Period	Prices(₹/kWh)		
			Minimum	Maximum	Average
IEX	Daily/Anyday	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Weekly	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Monthly	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Anyday Single Side	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-

Exchange	Hydro Energy Contract	Period	Prices(₹/kWh)		
			Minimum	Maximum	Average
		%Change (Year over Year)	NA	NA	NA
PXIL	Daily/Anyday	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Weekly	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Monthly	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Anyday Single Side	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
HPX	Daily/Anyday	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
	Weekly	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
	Monthly	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
	Anyday Single Side	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table – 6F

6.3.1. In November, 2023, there was no transaction under GTAM (Hydro) in IEX, PXIL & HPX.

7. Green Day Ahead Contingency & Intra Day (G-DAC & ID):

The total volume of electricity transacted in the IEX, PXIL & HPX under G-DAC & ID on delivery date basis during November, 2023 was **7.89 MU** (**3.10 MU** in Solar, **3.41 MU** in Non-Solar and **1.38 MU** in Hydro), respectively.

The total volume of electricity transacted under G-DAC & ID in Day Ahead Contingency and Intra Day contracts during November, 2023 and its comparison with October, 2023 and November, 2022 on delivery date basis are shown in tables 7A to 7F.

7.1. Solar Energy Segment under G-DAC & ID

The Final Scheduled Volume and the Price of electricity transacted under G-DAC & ID (Solar) in Power Exchanges during November, 2023 and its comparison with October, 2023 and November, 2022 are shown in Table- 7A & 7B:

(i) Final Scheduled Volume:

Exchange	Solar Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
IEX	Day Ahead Contingency	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change Month over Month)	NA	NA	NA	NA
		November, 2022	1.35	0.23	1.12	0.67
		%Change (Year over Year)	NA	NA	NA	NA
	Intra Day	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
PXIL	Day Ahead Contingency	November, 2023	-	-	-	-
		October, 2023	0.76	0.15	0.45	0.25
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	12.57	0.22	1.92	0.66
		%Change (Year over Year)	NA	NA	NA	NA
	Intra Day	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
HPX	Day Ahead Contingency	November, 2023	3.10	0.01	1.47	0.12
		October, 2023	0.76	0.04	0.08	0.05
		%Change (Month over Month)	307.89	-75.00	1737.50	140.00

Exchange	Solar Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
	Intra Day	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table-7A

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

Exchange	Solar Energy Contract	Period	Prices(₹/kWh)		
			Minimum	Maximum	Average
IEX	Day Ahead Contingency	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	4.85	5.09	4.97
		%Change (Year over Year)	NA	NA	NA
	Intra Day	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
PXIL	Day Ahead Contingency	November, 2023	-	-	-
		October, 2023	5.26	6.29	6.03
		%Change (Month over Month)	NA	NA	NA
		November, 2022	4.47	5.95	5.11
		%Change (Year over Year)	NA	NA	NA
	Intra Day	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
HPX	Day Ahead Contingency	November, 2023	3.96	6.01	4.40
		October, 2023	4.97	10.00	6.86
		%Change (Month over Month)	-20.32	-39.90	-35.86
	Intra Day	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table-7B

7.1.1. In November, 2023, there was no transmission congestion under G-DAC & ID (Solar) in HPX. There was no transaction in IEX & PXIL under G-DAC & ID (Solar).

7.1.2. In November, 2023, there was no real time curtailment under G-DAC & ID (Solar) in HPX. There was no transaction in IEX & PXIL under G-DAC & ID (Solar).

7.2. Non-Solar Energy Segment under G-DAC & ID

The Final Scheduled Volume and the Price of electricity transacted under G-DAC & ID (Non-Solar) in Power Exchanges during November, 2023 and its comparison with October, 2023 and November, 2022 are shown in Table- 7C & 7D:

(i) Final Scheduled Volume:

Exchange	Non- Solar Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
IEX	Day Ahead Contingency	November, 2023	0.37	0.37	0.37	0.37
		October, 2023	0.21	0.05	0.16	0.10
		%Change (Month over Month)	76.19	640.00	131.25	270.00
		November, 2022	25.52	0.43	1.71	0.85
		%Change (Year over Year)	-98.55	-13.95	-78.36	-56.47
	Intra Day	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
PXIL	Day Ahead Contingency	November, 2023	-	-	-	-
		October, 2023	2.19	0.03	0.62	0.20
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	74.45	0.82	4.28	2.48
		%Change (Year over Year)	NA	NA	NA	NA
	Intra Day	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
HPX	Day Ahead Contingency	November, 2023	3.04	0.01	2.47	0.15
		October, 2023	3.14	0.01	1.73	0.17
		%Change (Month over Month)	-3.18	0.00	42.77	-11.76
	Intra Day	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA

:- No transaction took place

NA: Not Applicable

Table - 7C

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

Exchange	Non- Solar Energy Contract	Period	Prices(₹/kWh)		
			Minimum	Maximum	Average
IEX	Day Ahead Contingency	November, 2023	6.27	6.27	6.27
		October, 2023	8.58	10.00	9.65
		%Change (Month over Month)	-26.92	-37.30	-35.03
		November, 2022	5.22	5.70	5.65
		%Change (Year over Year)	20.11	10.00	10.97
	Intra Day	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
PXIL	Day Ahead Contingency	November, 2023	-	-	-
		October, 2023	4.58	10.00	8.17
		%Change (Month over Month)	NA	NA	NA
		November, 2022	4.08	5.29	4.74
		%Change (Year over Year)	NA	NA	NA
	Intra Day	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
HPX	Day Ahead Contingency	November, 2023	4.24	6.69	6.00
		October, 2023	3.68	10.00	5.48
		%Change (Month over Month)	15.22	-33.10	9.49
	Intra Day	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table - 7D

7.2.1. In November, 2023, there was no transmission congestion in IEX & HPX under G-DAC & ID (Non Solar). There was no transaction in PXIL under G-DAC & ID (Non Solar).

7.2.2. In November, 2023, there was no real time curtailment in IEX & HPX. There was no transaction in PXIL under G-DAC & ID (Non Solar).

7.3. Hydro Energy Segment under G-DAC & ID

The Final Scheduled Volume and the Price of electricity transacted under G-DAC & ID (Hydro) in Power Exchanges during November, 2023 and its comparison with October, 2023 and November, 2022 are shown in Table- 7E & 7F:

(i) Final Scheduled Volume:

Exchange	Hydro Energy Contract	Period	Final Scheduled Volume (MU)			
			Total	Minimum (on a day)	Maximum (on a day)	Average (per day)
IEX	Day Ahead Contingency	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	36.26	0.81	1.57	1.21
		%Change (Year over Year)	NA	NA	NA	NA
	Intra Day	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
PXIL	Day Ahead Contingency	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
	Intra Day	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA
		November, 2022	-	-	-	-
		%Change (Year over Year)	NA	NA	NA	NA
HPX	Day Ahead Contingency	November, 2023	1.38	0.04	0.52	0.13
		October, 2023	1.91	0.84	1.08	0.96
		%Change (Month over Month)	-27.75	-95.24	-51.85	-86.46
	Intra Day	November, 2023	-	-	-	-
		October, 2023	-	-	-	-
		%Change (Month over Month)	NA	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table: 7E

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

Exchange	Hydro Energy Contract	Period	Prices(₹/kWh)		
			Minimum	Maximum	Average
IEX	Day Ahead Contingency	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	3.98	5.64	4.98
		%Change (Year over Year)	NA	NA	NA
	Intra Day	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
PXIL	Day Ahead Contingency	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
	Intra Day	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA
		November, 2022	-	-	-
		%Change (Year over Year)	NA	NA	NA
HPX	Day Ahead Contingency	November, 2023	4.49	7.49	6.10
		October, 2023	4.66	5.34	5.04
		%Change (Month over Month)	-3.65	40.26	21.03
	Intra Day	November, 2023	-	-	-
		October, 2023	-	-	-
		%Change (Month over Month)	NA	NA	NA

-: No transaction took place

NA: Not Applicable

Table – 7F

7.3.1. In November, 2023, there was no transmission congestion in HPX under G-DAC & ID (Hydro). There was no transaction in IEX and PXIL under G-DAC & ID (Hydro).

7.3.2. In November, 2023, there was no real time curtailment in HPX under G-DAC & ID (Hydro). There was no transaction in IEX and PXIL under G-DAC & ID (Hydro).

8. Bilateral Transactions:

The total volume of electricity transacted through **bilateral transactions** in November, 2023 was **3,025.41 MU**. The total buy volume of electricity transacted in bilateral market through direct and trader transactions in November, 2023 were **970.49 MU** and **2,054.92 MU** respectively. The details of bilateral transactions of Electricity during November, 2023 are shown in table below:

November, 2023	Direct	Traders	Total Bilateral Transaction (MU)
Total	970.49	2,054.92	3,025.41
Minimum	0.44	0.11	-
Maximum	371.17	565.43	-

Table -8A

The region-wise maximum/ minimum volume of electricity transacted bilaterally during November, 2023 are given in table below:

(i) Region-wise Volume:

Region-wise Volume (MU)	ER		WR		NR		SR		NER	
	Direct	Trader	Direct	Trader	Direct	Trader	Direct	Trader	Direct	Trader
Total	185.33	2.47	128.13	977.07	208.53	852.42	448.50	218.76	-	4.20
Minimum	0.44	0.11	5.76	0.29	0.69	7.77	23.33	7.26	-	4.20
Maximum	135.97	2.36	55.12	565.43	105.00	537.71	371.17	105.75	-	4.20

Table-8B

- 8.1. The top 5 buyers** on bilateral transaction through direct transactions in November, 2023 were **Karnataka, Jharkhand, Rajasthan, Jammu Kashmir** and **Gujarat**, which constituted **77.18 %** of the market volume. Whereas **top 5 buyers** on bilateral transaction through traders in November, 2023 were **Maharashtra, Rajasthan, Gujarat, Himachal Pradesh** and **Tamil Nadu**, which constituted **86.07 %** of the market volume. [Annexure III]
- 8.2. The top 5 sellers** on bilateral transaction through direct transactions in November, 2023 were **Andhra Pradesh, Uttar Pradesh, ADHUNIK POWER & NATURAL RESOURCES LIMITED, Tamil Nadu** and **Jindal Power Limited, Stage-1**, which constituted **74.56 %** of the market volume. Whereas **top 5 sellers** on bilateral transaction through traders in November, 2023 were **Punjab, Jindal India Thermal Power Limited, Adani Power Limited-Raipur TPP, Jaypee Nigrie Super Thermal Power Plant** and **MAHAN ENERGEN LIMITED.**, which constituted **55.92 %** of the market volume. [Annexure III]
- 8.3. Deviation Volume** -The volume of Deviation observed in November, 2023 in import and export were **4,009.82 MU** and **4,105.57 MU** respectively. The total volume of Deviation observed in November, 2023 can be taken as **4,057.69 MU**.

8.4. A comparison of volume of electricity transacted through the Power Exchanges together under DAM, GDAM, HP-DAM, RTM, TAM, HP-TAM, DAC & ID, HP-DAC & ID, GTAM and G-DAC & ID (on delivery date basis) with Bilateral transactions and Deviation in November, 2023 is shown in **Figure 1:**

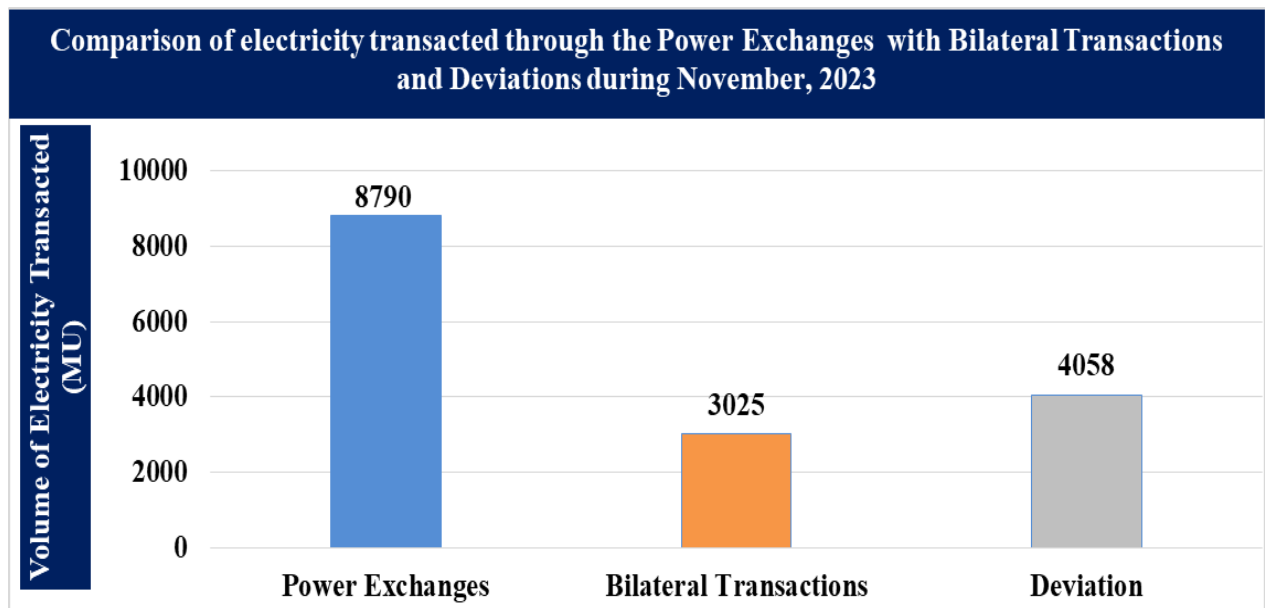
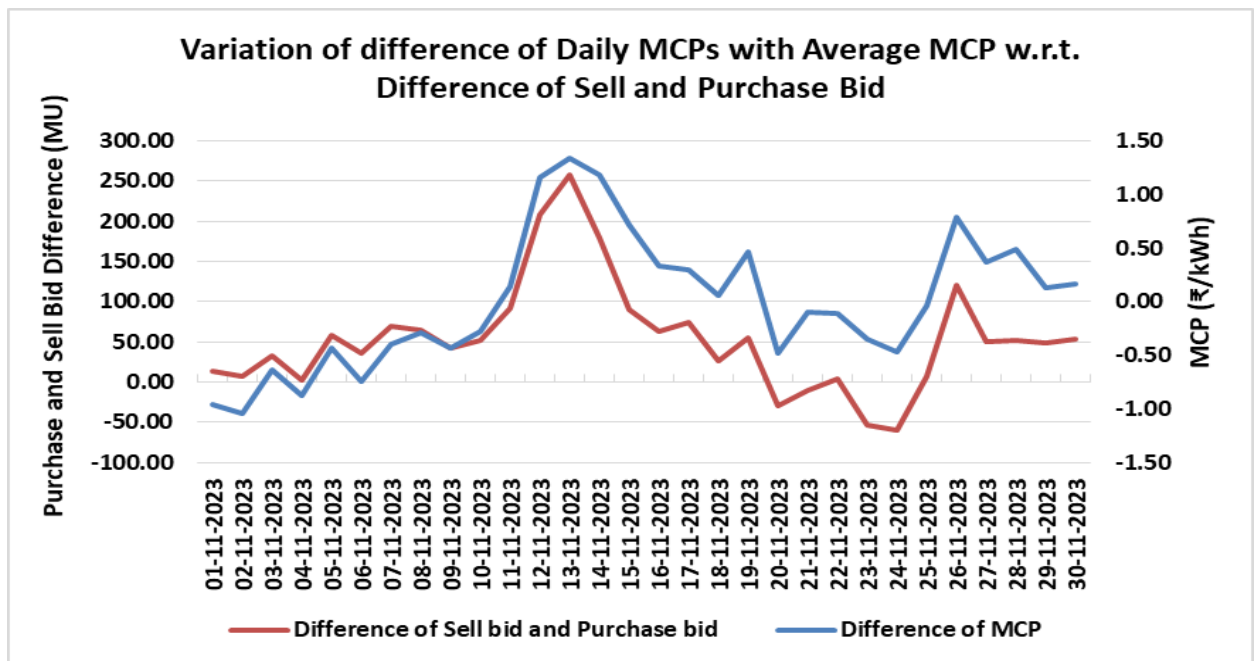


Figure -1

9. Analysis of movement of prices observed under DAM during November, 2023

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 November, 2023 month. The observations made are as under:

- 9.1. In order to find out the determinants which are responsible for the Daily Avg. MCP, a regression analysis has been carried out where the Daily Avg. MCP is the dependent variable and the independent variables are peak demand, total purchase bid, total sell bid, coal generation, hydro generation, wind generation and solar generation.
- 9.2. A double log function was used so that elasticity of Daily Avg. MCP could be read off from the coefficients of independent variables. The regression analysis revealed that the most significant variable was the Peak Demand. Further, the regression analysis revealed that the elasticity of the Daily Avg. MCP with respect to Peak Demand was 2.57 in November, 2023.
- 9.3. The variation of difference of Daily Avg. MCPs with Average MCP w.r.t Difference of Sell and Purchase bid is Shown below:



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

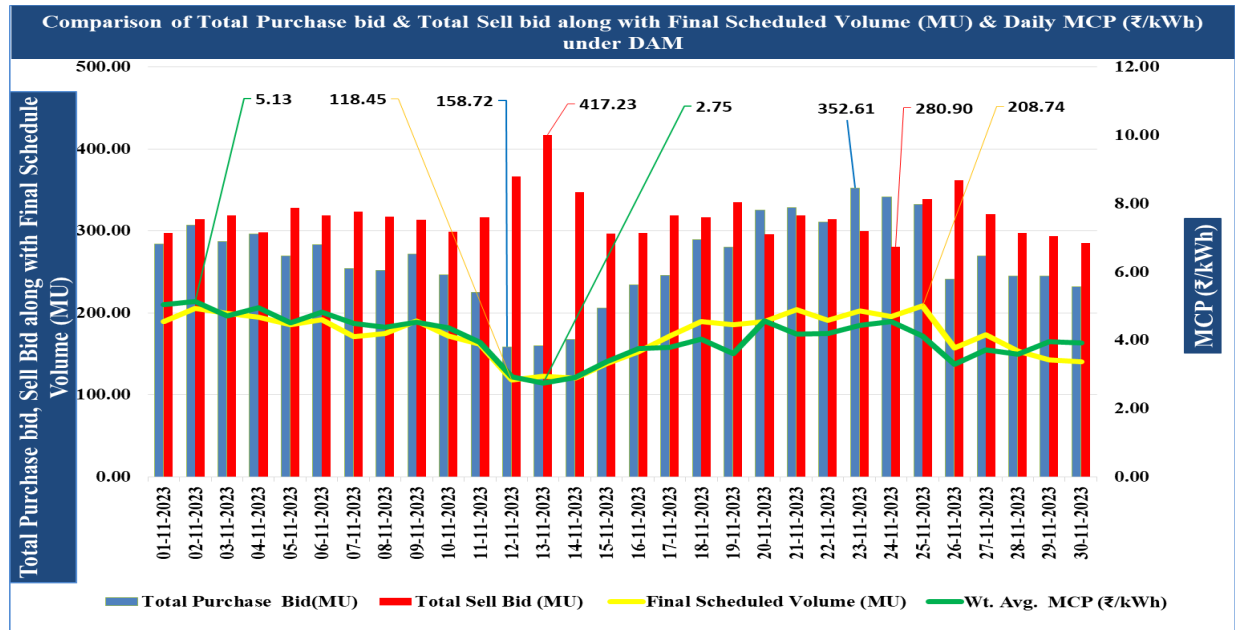


Figure – 2

9.5. Invariably, the Final Scheduled Volume (MU) and the Daily Avg. MCP (₹/kWh) showed decreasing trend on Sundays and increasing trend on Mondays as the demand of electricity in the country was less on Sundays as compared to other days of week. However, during the month of November, 2023, same trend is observed.

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

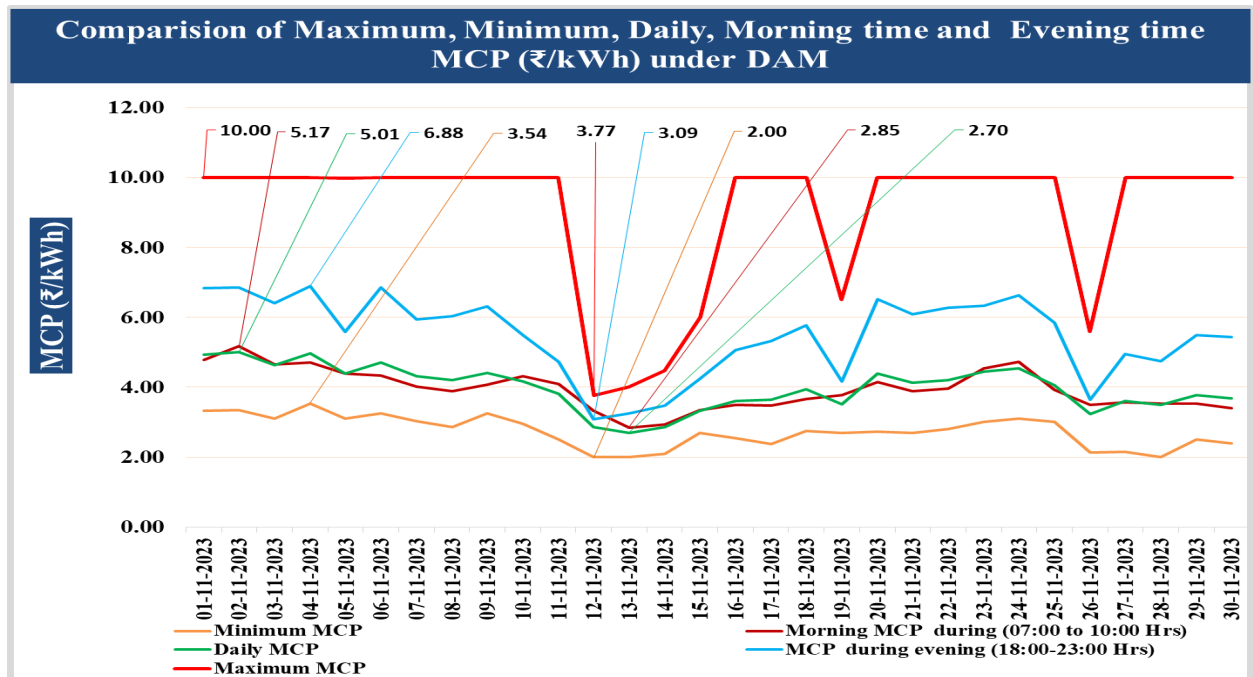


Figure-3

9.7. The Market Clearing Price duration curves for time block wise MCP for the month of November, 2023 is shown in **Figure 4**, whereas the time block wise MCP duration curve for the period 1st April, 2023 to 30th November, 2023 is shown in **Figure 5**.

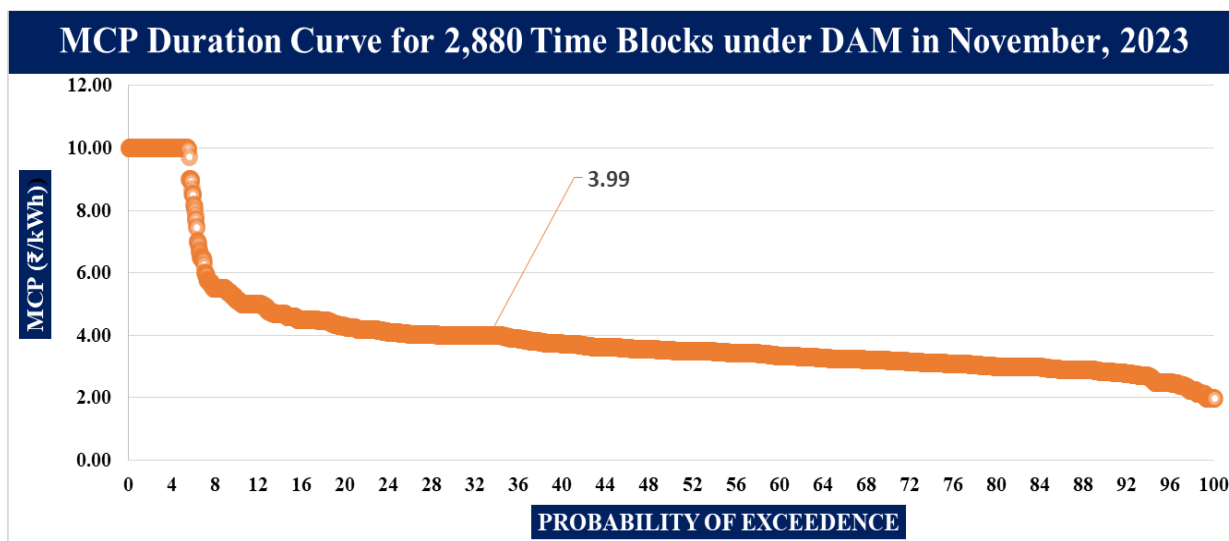


Figure – 4

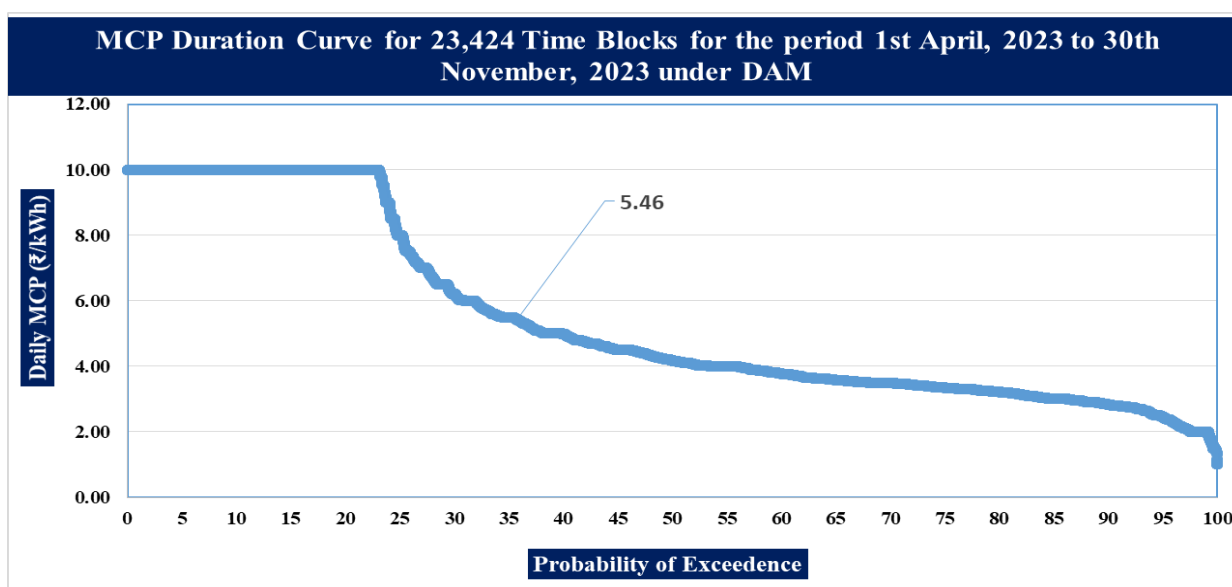


Figure-5

9.8. It can be seen in figure 4 above that in the MCP duration curve of November, 2023, for 33.00 % of the time MCP was above average MCP of the month (i.e. ₹ 3.99/kWh) and almost 67.00 % of the time MCP was below the average MCP of the month. Similarly, it can be seen in the MCP duration curve from 1st April, 2023 to 30th November, 2023 (figure-5), that for 36.00 % of the time the MCP was above the average MCP for the period (i.e. ₹ 5.46/kWh) and for 64.00 % of the time the Daily Avg. MCP was below the average MCP for the period.

9.9. The Purchase Bids and the MCP discovered in each of the 15-minute time block during the month almost followed the same trend [Annexure V]. This is also corroborated with the outcome of regression analysis mentioned at para 9.1 and 9.2 above.

9.10. In November, 2023, the maximum FSV occurred mostly during the **time period 07-08 Hrs** (on 19 no. of days). Whereas, the maximum MCP occurred mostly during the **time period 17-18 Hrs** (on 22 no. of days). Similarly, the minimum FSV occurred mostly during the **time period 23-24**

Hrs (on 14 no. of days). Whereas, the minimum MCP occurred mostly during the **time period 03-04 Hrs** (on 19 no. of days). **[Annexure VI]**

- 9.11.** In November, 2023, there was no congestion in IEX, PXIL & HPX. Further, in October, 2023, there was **1.41 MU** in IEX and no congestion in PXIL & HPX. Further, in November, 2022, there was no congestion in IEX and no transaction of electricity took place in PXIL & HPX.
- 9.12.** In November, 2023, there was **no** real time curtailment in IEX, PXIL & HPX. Further, in October, 2023, there was **no** real time curtailment in IEX, PXIL & HPX. Further in November, 2022, there was **no** real time curtailment in IEX and no transaction of electricity took place in PXIL & HPX.
- 9.13.** The **top 10 sellers** on the power exchanges under Day Ahead Market (**DAM**) in November, 2023 were **Chhattisgarh, Uttar Pradesh, Adani Power Limited-Raipur TPP, DB Power, Odisha, Bihar, West Bengal, Jindal Power Ltd. Stg-II, Jindal Power** and **NVVN (SNA) - NEA**, which constituted **60.01 %** of the market volume. **[Annexure VII]**.
- 9.14.** The **top 10 purchasers** on the power exchanges under Day Ahead Market (**DAM**) in November, 2023 were **Maharashtra, Gujarat, Telangana, Andhra Pradesh, J&K, Uttar Pradesh, Uttarakhand, Tamil Nadu, Madhya Pradesh** and **West Bengal**, which constituted **88.65 %** of the market volume. **[Annexure VII]**
- 9.15.** The total volume of electricity purchased by Discoms/Licensees under DAM in November, 2023 was **5,050.16 MU**, which constituted **97.09 %** of total volume of electricity purchased on the power exchanges.
- 9.16.** Similarly, the total volume of electricity sold by Discoms/Licensees under DAM in November, 2023 was **2,567.39 MU**, which constituted **49.36 %** of total volume of electricity sold on the power exchanges.

10. Analysis of movement of prices observed under Real Time Market (RTM) transactions in November, 2023

10.1. 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 variable was the Peak Demand. Further, the regression analysis revealed that the elasticity of the Daily Avg. MCP with respect to Peak Demand was **3.37** in November, 2023.

10.2. The Purchase Bids and the MCP discovered in each of the 15-minute time block during the month almost followed the same trend [Annexure IX]. This is also corroborated with the outcome of regression analysis mentioned at **para 10.1 above**.

10.3. The Total Purchase Bid, Total Sell Bid, Daily Avg. MCP and FSV are shown in Figure-6 below:

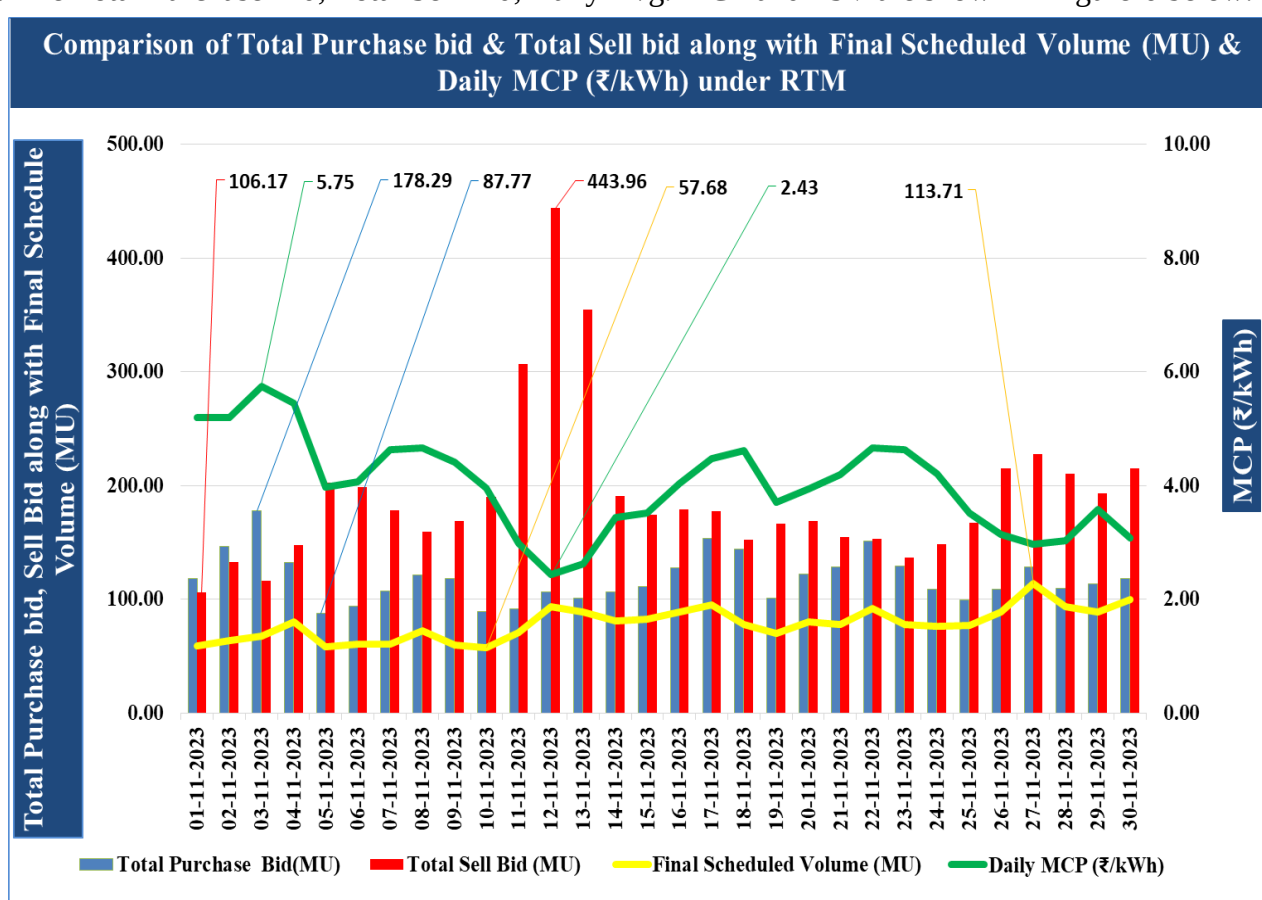


Figure-6

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

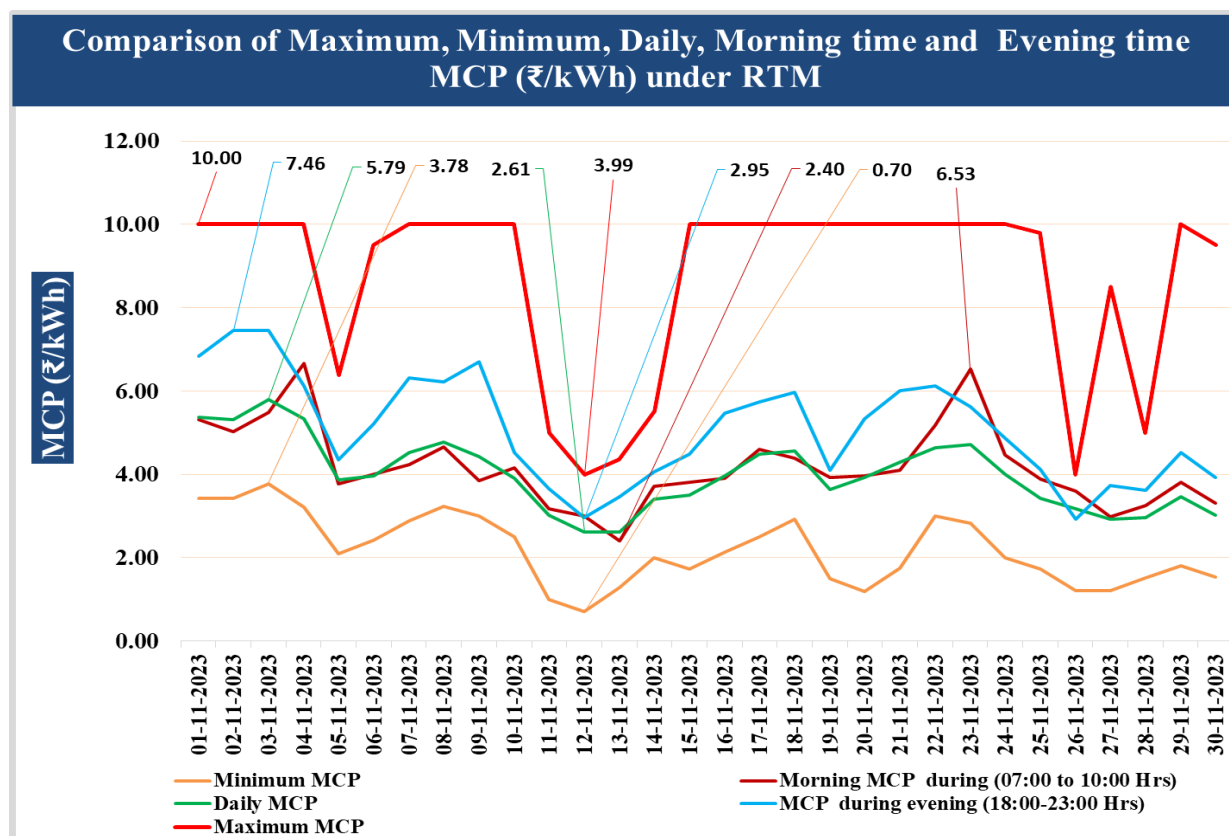


Figure-7

10.5. The Market Clearing Price duration curves for time block wise MCP for the month of November, 2023 is shown in **Figure 8**, whereas the day wise MCP duration curve for the period 1st April, 2023 to 30th November, 2023 is shown in **Figure 9**.

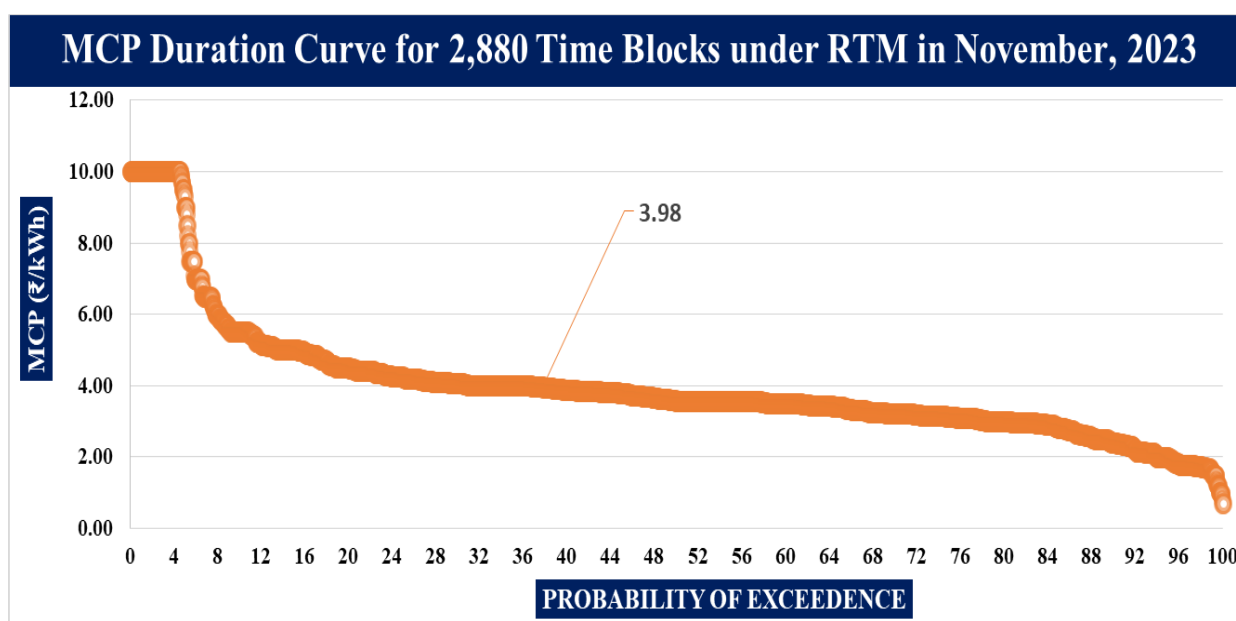


Figure-8

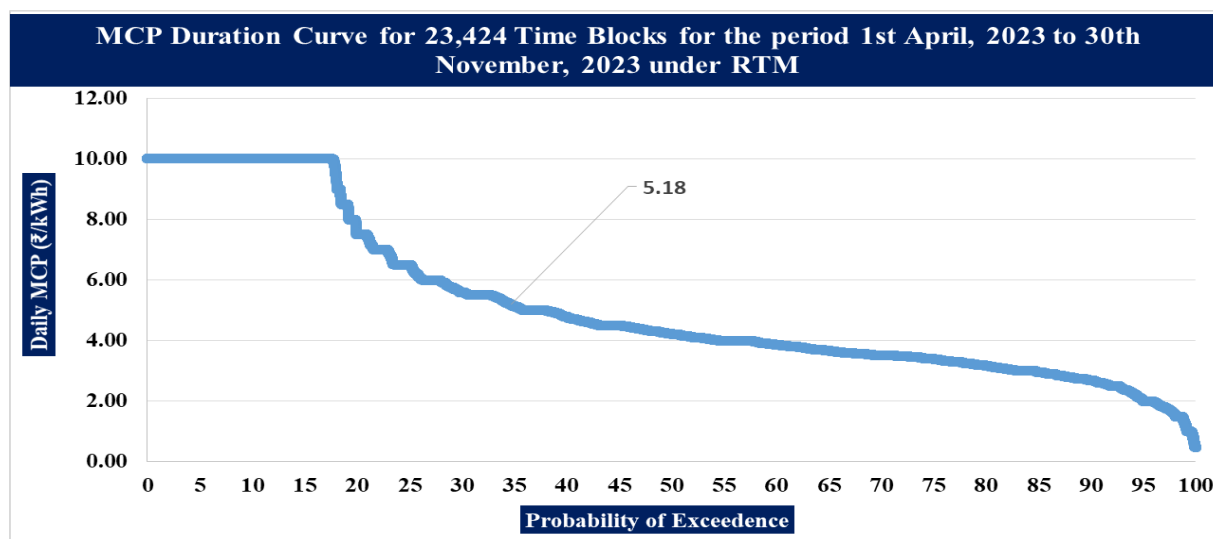


Figure-9

- 10.6.** It can be seen in figure 8 above that in the MCP duration curve of November, 2023, for 38.00 % of the time the MCP was above the average MCP of the month (i.e. ₹ 3.98/kWh) and for 62.00 % of the time the MCP was below the average MCP of the month. Similarly, it can be seen in the cumulative MCP duration curve from 1st April, 2023 to 30th November, 2023 (figure 9) that, for 36.00 % of the time the Daily Avg. MCP was above the average MCP for the period (i.e. ₹ 5.18/kWh) and for 64.00 % of the time the Daily Avg. MCP was below the average MCP for the period.
- 10.7.** In November, 2023, the maximum FSV occurred mostly during the **time period 16-18 Hrs** (on 10 no. of days). Whereas, the maximum MCP also occurred mostly during the **time period 17-18 Hrs** (on 19 no. of days). Similarly, the minimum FSV occurred mostly during the **time period 17-19 Hrs** (on 14 no. of days). Whereas, the minimum MCP occurred mostly during the **time period 07-10 Hrs** (on 7 no. of days).[Annexure X]
- 10.8.** There was **no** real time curtailment in IEX & HPX and no transaction took place in PXIL under Real Time Market (RTM) during November, 2023. Further, in October, 2023 **no** real time curtailment occurred IEX, PXIL and HPX. Similarly, in November, 2022, there was **no** real time curtailment in IEX and no transaction took place in PXIL & HPX.
- 10.9.** In November, 2023 there was **no** congestion in IEX & HPX and no transaction took place in PXIL. Further, in October, 2023, there was **no** congestion in IEX, PXIL & HPX. Similarly, in November, 2022, there was congestion of **0.07 MU** in the transmission system in IEX and no transaction took place in PXIL & HPX.
- 10.10.** The **top 10 sellers** on the power exchanges under Real Time Market (RTM) in November, 2023 were **Bihar, Rajasthan, Madhya Pradesh, Uttar Pradesh, Chhattisgarh, West Bengal, Odisha, Jharkhand, Assam and Kahalgaon**, which constituted **63.51 %** of the market volume. [Annexure XI]

10.11. The **top 10 buyers** on the power exchanges in **Telangana, Maharashtra, Andhra Pradesh, J&K, Kerala, Madhya Pradesh, Uttar Pradesh, Karnataka, DVC and Punjab**, which constituted **79.29 %** of the market volume. **[Annexure XI]**

10.12. The total volume of electricity purchased by Discoms/Licensees under RTM in November, 2023 was **2,265.82 MU**, which constituted **96.04 %** of total volume of electricity purchased on the power exchanges.

10.13. Similarly, the total volume of electricity sold by Discoms/Licensees under RTM in November, 2023 was **1,762.56 MU**, which constituted **74.71 %** of total volume of electricity sold on the power exchanges.

-
- **Source DAM, GDAM, TAM, GTAM and RTM data: IEX, PXIL and HPX**
 - **Source Entity wise sale and purchase on PXs data: NLDC**
 - **Source Total Energy supplied: CEA**
 - **Source Generation & other data for Regression: NLDC and IEX**

Final Scheduled Volume, Average MCP and Real-Time Curtailment under Day Ahead Market (DAM) for the months of April, 2023 to November, 2023 of IEX, PXIL and HPX.										
Quarter	Months	Final Scheduled Volume (MU)			Market Clearing Price (₹/kWh)			Real Time Curtailment (MU)		
		IEX	PXIL	HPX	IEX	PXIL	HPX	IEX	PXIL	HPX
Quarter -I	April, 2023	4,408.93	0	0	5.08	0	0	0	0	0
	May, 2023	3,999.76	1.56	0	4.77	6.94	0	0	1.55	0
	June, 2023	4,123.34	0.03	0	5.16	10.00	0	0	0	0
Total Quarter -I	April - June, 2023	12,532.03	1.59	0	5.01	7.00	0	0	1.55	0
Quarter -II	July, 2023	3,966.20	0	0	4.52	0	0	0	0	0
	August, 2023	3,881.41	16.34	0.27	6.43	9.33	10.00	0	0	0
	September, 2023	3405.42	11.67	18.51	5.87	10.00	10.00	0	0	0
Total Quarter -II	July - September, 2023	11,253.03	28.01	18.78	5.59	9.61	10.00	0.00	0.00	0.00
Quarter -III	October, 2023	4,688.35	21.60	36.83	6.36	10.00	10.00	0	0	0
	November, 2023	5,196.16	3.12	2.15	4.16	9.36	10.00	0	0	0
	December, 2023									
Total Quarter -III	October - December , 2023	9,884.51	24.72	38.98	5.20	9.92	10.00	0.00	0.00	0.00
Total April, 2023 – November, 2023		33,669.57	54.32	57.76	5.26	9.67	10.00	0.00	1.55	0.00

Annexure-II

Final Scheduled Volume under Term Ahead Market (TAM) for the months of April, 2023 to November, 2023 of IEX, PXIL and HPX (Delivery date basis)					
Quarter	Months	Final Scheduled Volume (MU)			
		IEX	PXIL	HPX	Total
Quarter -I	April, 2023	317.91	111.30	321.83	751.04
	May, 2023	607.72	133.80	198.75	940.27
	June, 2023	322.49	172.80	95.24	590.53
Total Quarter – I	April - June, 2023	1,248.12	417.90	615.82	2,281.84
Quarter -II	July, 2023	287.60	20.40	154.02	462.02
	August, 2023	768.73	287.36	355.21	1,411.30
	September, 2023	1,131.71	1,017.15	516.10	2,664.96
Total Quarter – II	July - September, 2023	2,188.04	1,324.91	1,025.33	4,538.28
Quarter -III	October, 2023	1,677.00	611.28	842.29	3,130.57
	November, 2023	642.96	153.00	119.41	915.37
	December, 2023				
Total Quarter – III	October - December , 2023	2,319.96	764.28	961.70	4,045.94
Total April, 2023 – November, 2023		5,756.12	2,507.09	2,602.85	10,866.06

Top Five Entities (Buyers and Sellers) in Bilateral transactions in November, 2023

(i) Top five Buyers in Bilateral transactions

Entity Name	Direct		Entity Name	Through Traders	
	(MU)	Percent		(MU)	Percent
Karnataka	371.17	38.25 %	Maharashtra	565.43	27.52 %
Jharkhand	135.97	14.01 %	Rajasthan	537.71	26.17 %
Rajasthan	105.00	10.82 %	Gujarat	358.82	17.46 %
Jammu Kashmir	81.81	8.43 %	Himachal Pradesh	200.91	9.78 %
Gujarat	55.12	5.68 %	Tamil Nadu	105.75	5.15 %
Total Volume	749.07	77.18 %	Total Volume	1,768.61	86.07 %
Total Volume in Bilateral	970.49		Total Volume in Bilateral	2,054.92	

(ii) Top five Sellers in Bilateral transactions

Entity Name	Direct		Entity Name	Through Traders	
	(MU)	Percent		(MU)	Percent
Andhra Pradesh	240.67	24.80 %	Punjab	301.01	14.65 %
Uttar Pradesh	150.81	15.54 %	Jindal India Thermal Power Limited	246.78	12.01 %
ADHUNIK POWER & NATURAL RESOURCES LIMITED	135.97	14.01 %	Adani Power Limited-Raipur TPP	245.91	11.97 %
Tamil Nadu	105.00	10.82 %	Jaypee Nigrie Super Thermal Power Plant	193.24	9.40 %
Jindal Power Limited, Stage-1	91.12	9.39 %	MAHAN ENERGEN LIMITED.	162.08	7.89 %
Total Volume	723.57	74.56 %	Total Volume	1,149.02	55.92 %
Total Volume in Bilateral	970.49		Total Volume in Bilateral	2,054.92	

Evening, Day, Night, Morning, Maximum, Minimum, Average MCP (₹/kWh) and Final Scheduled Volume (MU) under DAM

Date	Morning MCP (07:00-10:00)	Day MCP (11:00-17:00)	Evening MCP (18:00- 23:00)	Night MCP (01:00- 06:00, 23:00-24:00)	Maximum MCP	Minimum MCP	Average MCP	Final Scheduled Volume (MU)
01-11-2023	4.78	4.20	6.83	4.15	10.00	3.32	4.94	189.36
02-11-2023	5.17	4.20	6.85	4.15	10.00	3.35	5.01	205.73
03-11-2023	4.66	3.81	6.41	3.93	10.00	3.10	4.64	199.32
04-11-2023	4.70	4.32	6.88	4.15	10.00	3.54	4.97	194.53
05-11-2023	4.39	3.73	5.58	4.01	9.97	3.10	4.39	185.76
06-11-2023	4.33	4.04	6.86	3.77	10.00	3.25	4.72	191.49
07-11-2023	4.02	3.83	5.94	3.60	10.00	3.02	4.32	170.84
08-11-2023	3.90	3.54	6.03	3.47	10.00	2.85	4.20	174.65
09-11-2023	4.07	3.78	6.32	3.58	10.00	3.25	4.41	190.59
10-11-2023	4.32	3.74	5.49	3.37	10.00	2.95	4.16	172.27
11-11-2023	4.10	3.40	4.73	3.26	10.00	2.51	3.81	161.71
12-11-2023	3.33	2.37	3.09	2.89	3.77	2.00	2.86	118.45
13-11-2023	2.85	2.26	3.26	2.57	4.00	2.00	2.70	123.04
14-11-2023	2.94	2.57	3.48	2.57	4.48	2.10	2.86	120.50
15-11-2023	3.34	2.95	4.23	2.90	6.00	2.70	3.32	138.03
16-11-2023	3.49	3.16	5.06	2.90	10.00	2.55	3.61	152.92
17-11-2023	3.48	3.14	5.33	2.81	10.00	2.38	3.65	172.15
18-11-2023	3.67	3.42	5.76	3.06	10.00	2.75	3.94	189.60
19-11-2023	3.78	3.35	4.16	3.00	6.50	2.70	3.52	185.65
20-11-2023	4.15	4.10	6.51	3.02	10.00	2.73	4.40	189.49
21-11-2023	3.88	3.69	6.08	3.01	10.00	2.69	4.12	204.38
22-11-2023	3.96	3.70	6.28	3.06	10.00	2.81	4.20	191.22
23-11-2023	4.54	3.98	6.33	3.24	10.00	3.00	4.44	202.72
24-11-2023	4.73	3.86	6.63	3.32	10.00	3.10	4.54	195.34
25-11-2023	3.93	3.52	5.85	3.13	10.00	3.00	4.06	208.74
26-11-2023	3.50	3.23	3.64	2.74	5.60	2.13	3.23	157.55
27-11-2023	3.56	3.39	4.95	2.72	10.00	2.14	3.61	173.66
28-11-2023	3.53	3.27	4.74	2.65	10.00	2.00	3.50	153.26
29-11-2023	3.54	3.23	5.49	2.96	10.00	2.50	3.77	142.62
30-11-2023	3.40	3.26	5.43	2.78	10.00	2.40	3.69	140.59
Maximum	5.17	4.32	6.88	4.15	10.00	3.54	5.01	208.74
Minimum	2.85	2.26	3.09	2.57	3.77	2.00	2.70	118.45
Average	3.93	3.50	5.47	3.23	9.01	2.73	3.99	173.21

MCP: Market Clearing Price (₹/kWh)

FSV: Final Scheduled Volume (MU)

Comparison of MCP w.r.t. Purchase Bid for 2,880 Time Blocks during the month of November, 2023 under DAM



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

Date	Max. FSV (MU)		Max. MCP (₹/kWh)		Min FSV (MU)		Min. MCP (₹/kWh)	
	Time Block	Value	Time Block	Value	Time Block	Value	Time Block	Value
01-11-2023	07:00 - 07:15	2.81	16:30 - 16:45	10.00	02:45 - 03:00	1.39	13:00 - 13:15	3.32
02-11-2023	07:00 - 07:15	3.12	16:45 - 17:00	10.00	02:45 - 03:00	1.51	13:00 - 13:15	3.35
03-11-2023	07:00 - 07:15	3.17	17:15 - 17:30	10.00	02:00 - 02:15	1.45	13:15 - 13:30	3.10
04-11-2023	07:00 - 07:15	2.97	16:30 - 16:45	10.00	02:15 - 02:30	1.53	13:15 - 13:30	3.54
05-11-2023	07:00 - 07:15	2.97	17:45 - 18:00	9.97	23:45 - 24:00	1.36	13:00 - 13:15	3.10
06-11-2023	16:00 - 16:15	2.98	16:45 - 17:00	10.00	02:45 - 03:00	1.31	13:15 - 13:30	3.25
07-11-2023	15:45 - 16:00	2.74	17:30 - 17:45	10.00	03:30 - 03:45	1.15	03:30 - 03:45	3.02
08-11-2023	07:00 - 07:15	2.73	17:30 - 17:45	10.00	03:15 - 03:30	1.22	13:15 - 13:30	2.85
09-11-2023	16:15 - 16:30	2.85	17:15 - 17:30	10.00	02:30 - 02:45	1.52	13:00 - 13:15	3.25
10-11-2023	18:30 - 18:45	2.54	17:45 - 18:00	10.00	23:45 - 24:00	1.32	03:30 - 03:45	2.95
11-11-2023	07:00 - 07:15	2.33	17:45 - 18:00	10.00	23:45 - 24:00	1.25	13:15 - 13:30	2.51
12-11-2023	06:30 - 06:45	1.81	06:00 - 06:15	3.77	22:15 - 22:30	0.96	13:45 - 14:00	2.00
13-11-2023	07:00 - 07:15	1.91	17:45 - 18:00	4.00	23:00 - 23:15	1.03	13:30 - 13:45	2.00
14-11-2023	07:15 - 07:30	2.07	18:00 - 18:15	4.48	10:45 - 11:00	0.99	03:15 - 03:30	2.10
15-11-2023	07:00 - 07:15	2.00	18:00 - 18:15	6.00	00:00 - 00:15	1.13	03:45 - 04:00	2.70
16-11-2023	07:00 - 07:15	2.45	17:45 - 18:00	10.00	00:15 - 00:30	1.10	03:15 - 03:30	2.55
17-11-2023	16:45 - 17:00	2.62	17:30 - 17:45	10.00	02:15 - 02:30	1.40	03:45 - 04:00	2.38
18-11-2023	07:15 - 07:30	2.92	17:15 - 17:30	10.00	04:45 - 05:00	1.45	03:30 - 03:45	2.75
19-11-2023	07:15 - 07:30	2.78	17:45 - 18:00	6.50	00:15 - 00:30	1.47	03:30 - 03:45	2.70
20-11-2023	16:30 - 16:45	2.65	16:45 - 17:00	10.00	23:45 - 24:00	1.45	03:00 - 03:15	2.73
21-11-2023	07:15 - 07:30	3.22	17:00 - 17:15	10.00	23:30 - 23:45	1.43	03:45 - 04:00	2.69
22-11-2023	07:15 - 07:30	3.24	17:00 - 17:15	10.00	23:30 - 23:45	1.34	03:30 - 03:45	2.81
23-11-2023	07:15 - 07:30	3.28	17:00 - 17:15	10.00	23:30 - 23:45	1.29	03:45 - 04:00	3.00
24-11-2023	07:15 - 07:30	3.07	17:00 - 17:15	10.00	23:45 - 24:00	1.40	03:30 - 03:45	3.10
25-11-2023	16:15 - 16:30	3.07	17:00 - 17:15	10.00	23:45 - 24:00	1.40	03:45 - 04:00	3.00
26-11-2023	07:30 - 07:45	2.33	17:45 - 18:00	5.60	22:45 - 23:00	1.19	03:45 - 04:00	2.13
27-11-2023	16:00 - 16:15	2.60	17:15 - 17:30	10.00	23:30 - 23:45	1.20	03:45 - 04:00	2.14
28-11-2023	08:00 - 08:15	2.30	17:30 - 17:45	10.00	23:00 - 23:15	1.11	03:45 - 04:00	2.00
29-11-2023	07:15 - 07:30	2.21	17:15 - 17:30	10.00	23:30 - 23:45	1.03	03:30 - 03:45	2.50
30-11-2023	16:30 - 16:45	2.17	17:30 - 17:45	10.00	23:00 - 23:15	1.03	03:45 - 04:00	2.40

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

Annexure-VII

Sellers and Buyers under Day Ahead Market (DAM) in November, 2023						
S. No.	Entity Name	Sell		Entity Name	Purchase	
		(MU)	Percent (%)		(MU)	Percent (%)
1	Chhattisgarh	543.89	10.46%	Maharashtra	1085.36	20.87%
2	Uttar Pradesh	523.43	10.06%	Gujarat	807.78	15.53%
3	Adani Power	299.64	5.76%	Telangana	673.54	12.95%
4	DB Power	290.98	5.59%	Andhra Pradesh	575.08	11.06%
5	Odisha	258.83	4.98%	J&K	370.32	7.12%
6	Bihar	255.25	4.91%	Uttar Pradesh	338.00	6.50%
7	West Bengal	253.93	4.88%	Uttarakhand	222.22	4.27%
8	Jindal Power Ltd.	250.79	4.82%	Tamil Nadu	220.26	4.23%
9	Jindal Power	226.49	4.35%	Madhya Pradesh	206.54	3.97%
10	NVVN (SNA) -	218.36	4.20%	West Bengal	111.71	2.15%
11	Mahan Energy	179.54	3.45%	Punjab	87.64	1.68%
12	JITPL	158.50	3.05%	ArcelorMittal Nippon	78.67	1.51%
13	Rajasthan	143.02	2.75%	Kerala	58.97	1.13%
14	Adani Power	134.11	2.58%	Delhi	51.53	0.99%
15	Jaypee Nigrie	108.29	2.08%	Rajasthan	47.66	0.92%
16	SKS Power	100.06	1.92%	Daman & Diu - Dadra &	42.11	0.81%
17	Himachal Pradesh	91.40	1.76%	Karnataka	35.82	0.69%
18	Gujarat	84.44	1.62%	Railways	31.16	0.60%
19	Jindal Steel	74.11	1.42%	MB Power	27.12	0.52%
20	Haryana	73.53	1.41%	Haryana	26.99	0.52%
21	ACBIL	63.19	1.21%	Odisha	21.51	0.41%
22	Sembcorp Gayatri	62.51	1.20%	Meghalaya	17.97	0.35%
23	Maharashtra	58.48	1.12%	DVC	13.48	0.26%
24	Kahalgaoon	56.02	1.08%	Jhabua Power	11.36	0.22%
25	Madhya Pradesh	49.47	0.95%	Goa WR	9.74	0.19%
26	NEA-NR	44.31	0.85%	Jharkhand	6.85	0.13%
27	Delhi	41.26	0.79%	Sikkim	6.69	0.13%
28	Pondicherry	40.12	0.77%	Assam	5.50	0.11%
29	Adhunik Power	35.05	0.67%	Goa SR	5.35	0.10%
30	Punjab	28.39	0.55%	BHARAT ALUMINIUM	2.94	0.06%
31	Costal Energen	28.24	0.54%	Bihar	0.66	0.01%
32	Karcham Wangtoo	25.81	0.50%	Chhattisgarh	0.37	0.01%
33	Sembcorp Energy	24.16	0.46%	Chandigarh	0.22	0.004%
34	Tamil Nadu	24.14	0.46%	Himachal Pradesh	0.17	0.003%
35	Chandigarh	22.42	0.43%	Tripura	0.10	0.002%
36	Renew Surya Ravi	21.38	0.41%			
37	Shree Cement	21.01	0.40%			
38	Farakka	19.86	0.38%			
39	MB Power	18.82	0.36%			
40	Palatana	17.98	0.35%			
41	AD Hydro	16.60	0.32%			
42	Andhra Pradesh	15.77	0.30%			
43	Singrauli	13.50	0.26%			
44	Telangana	11.51	0.22%			
45	Maruti Clean Coal	11.02	0.21%			
46	DVC	9.42	0.18%			
47	Jhabua Power	9.03	0.17%			
48	Barh Stg-2	8.85	0.17%			
49	Sainj HEP	8.61	0.17%			
50	Druk Green Power	8.43	0.16%			
51	Meghalaya	8.18	0.16%			
52	ADANI WIND	6.33	0.12%			
53	Nagaland	6.08	0.12%			

54	Basochhu	5.99	0.12%			
55	Sorang HEP,	5.92	0.11%			
56	RKM Power	5.90	0.11%			
57	Sikkim	5.47	0.11%			
58	Barh STPS Stg - I	5.06	0.10%			
59	Uttarakhand	4.98	0.10%			
60	Mizoram	4.62	0.09%			
61	Darlipalli	4.12	0.08%			
62	Rihand-II	4.11	0.08%			
63	Farakka Stg 3	3.85	0.07%			
64	IL&FS	3.62	0.07%			
65	PARBATI II HE	3.50	0.07%			
66	Kerala	3.27	0.06%			
67	GMR Warora	3.17	0.06%			
68	Kahalgaon-II	2.68	0.05%			
69	Singoli Bhagwati	2.53	0.05%			
70	Goa WR	2.24	0.04%			
71	Bongaigaon	2.24	0.04%			
72	Manipur	2.13	0.04%			
73	Adani Green Energy	1.89	0.04%			
74	Nabinagar Power	1.86	0.04%			
75	DHARIWAL STU	1.73	0.03%			
76	Dhariwal ISTS	1.49	0.03%			
77	Rihand-I	1.46	0.03%			
78	Ostro Kannada	1.43	0.03%			
79	J&K	1.16	0.02%			
80	BALCO 2	1.12	0.02%			
81	Unchahar-IV	1.01	0.02%			
82	Simhapuri Energy	0.93	0.02%			
83	Lanco Budhil	0.83	0.02%			
84	Unchahar-II	0.82	0.02%			
85	Talcher	0.70	0.01%			
86	KBUNL(MTPS-II)	0.58	0.01%			
87	Arunachal Pradesh	0.55	0.01%			
88	Kopili Power Station	0.47	0.01%			
89	Ramagundam Stg-1	0.43	0.01%			
90	GMR Kamalanga	0.42	0.01%			
91	NTPC North	0.38	0.01%			
92	Simhadri Stg-2	0.36	0.01%			
93	NTPC Sholapur	0.35	0.01%			
94	RENEW SURYA	0.26	0.005%			
95	Unchahar-I	0.23	0.004%			
96	Dadri TPS	0.20	0.004%			
97	Unchahar-III	0.15	0.003%			
98	Tashiding HEP	0.13	0.003%			
99	Khargone STPP	0.09	0.002%			
100	Dadri Stg-2	0.09	0.002%			
101	Mouda Stg-1	0.09	0.002%			
102	Chuzachen	0.09	0.002%			
103	Jorethang	0.05	0.001%			
104	NTPC Kudgi	0.05	0.001%			
105	Mouda Stg-2	0.05	0.001%			
Total Volume of top 10		3,121.59	60.01%	Total Volume of top 10	4,610.81	88.65%
Total Volume in PXs		5,201.42		Total Volume in PXs	5,201.42	

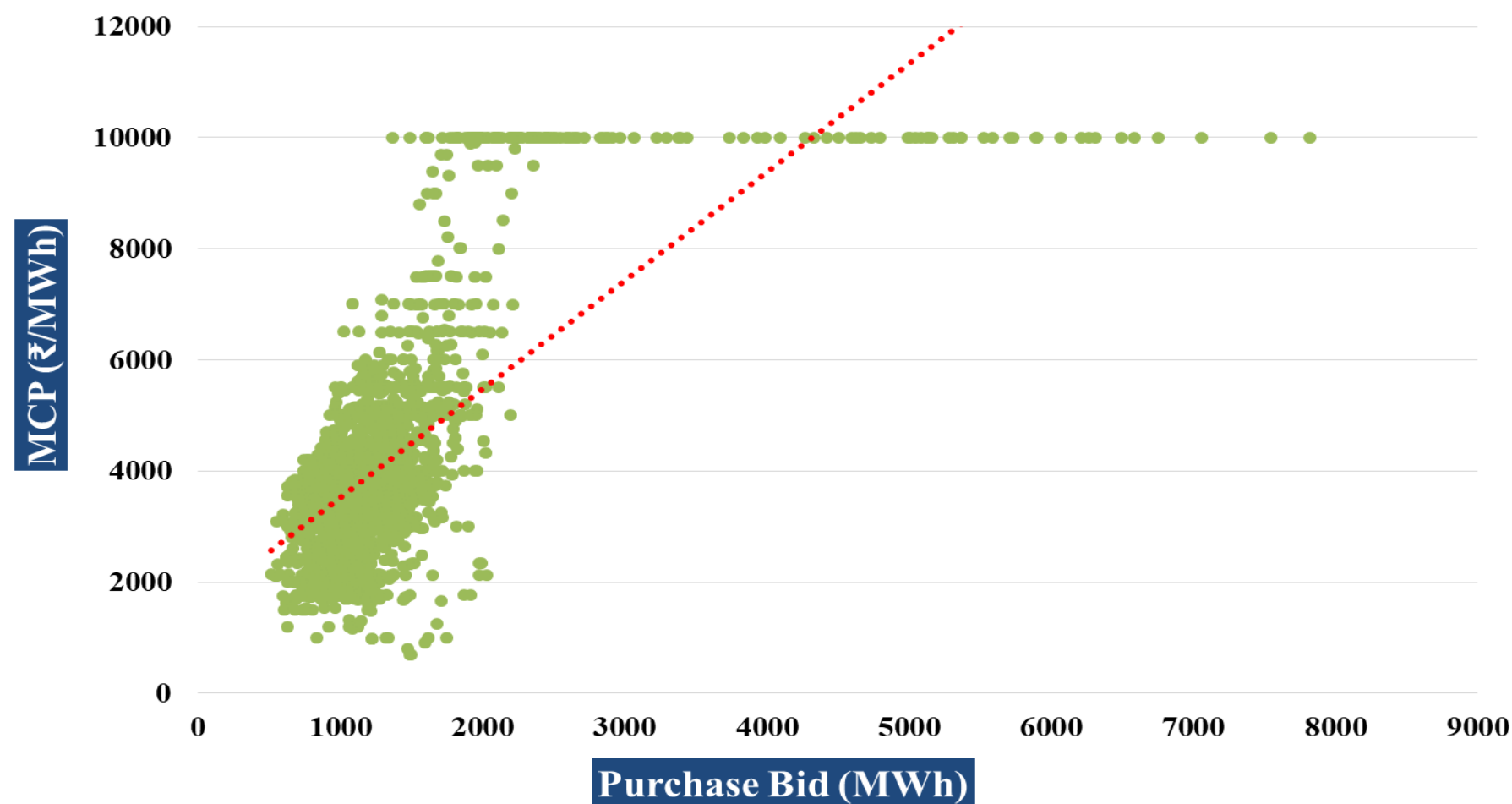
Evening, Day, Night, Morning, Maximum, Minimum, Average MCP (₹/kWh) and Final Scheduled Volume (MU) under RTM

Date	Morning MCP (07:00-10:00)	Day MCP (11:00-17:00)	Evening MCP (18:00- 23:00)	Night MCP (01:00- 06:00, 23:00-24:00)	Maximum MCP	Minimum MCP	Average MCP	Final Scheduled Volume (MU)
01-11-2023	5.31	5.41	6.84	4.08	10.00	3.42	5.36	59.45
02-11-2023	5.02	4.90	7.46	4.07	10.00	3.43	5.32	63.99
03-11-2023	5.49	5.82	7.46	4.51	10.00	3.78	5.79	67.91
04-11-2023	6.66	4.83	6.12	4.43	10.00	3.21	5.34	80.59
05-11-2023	3.77	3.60	4.36	3.76	6.39	2.10	3.87	58.18
06-11-2023	4.00	3.72	5.23	3.14	9.50	2.43	3.97	60.71
07-11-2023	4.24	4.24	6.32	3.45	10.00	2.89	4.53	60.95
08-11-2023	4.66	4.70	6.23	3.64	10.00	3.22	4.77	72.25
09-11-2023	3.86	3.82	6.70	3.42	10.00	3.00	4.43	60.03
10-11-2023	4.15	3.70	4.52	3.43	10.00	2.50	3.90	57.68
11-11-2023	3.18	2.83	3.66	2.57	5.00	1.00	3.02	71.04
12-11-2023	3.00	1.74	2.95	2.95	3.99	0.70	2.61	93.33
13-11-2023	2.40	2.59	3.47	2.05	4.37	1.30	2.62	89.01
14-11-2023	3.71	3.21	4.07	2.86	5.51	2.00	3.41	81.28
15-11-2023	3.81	3.33	4.49	2.65	10.00	1.74	3.50	82.85
16-11-2023	3.91	3.78	5.47	2.90	10.00	2.13	3.97	89.25
17-11-2023	4.61	4.84	5.74	3.01	10.00	2.50	4.49	95.54
18-11-2023	4.38	4.64	5.97	3.40	10.00	2.92	4.57	78.17
19-11-2023	3.93	3.60	4.09	3.11	10.00	1.50	3.64	70.32
20-11-2023	3.97	4.18	5.34	2.45	10.00	1.20	3.93	79.97
21-11-2023	4.10	4.37	6.01	2.83	10.00	1.76	4.28	77.91
22-11-2023	5.19	4.30	6.13	3.41	10.00	3.00	4.65	92.25
23-11-2023	6.53	4.18	5.62	3.44	10.00	2.82	4.72	77.99
24-11-2023	4.47	3.88	4.87	3.15	10.00	2.00	4.01	76.24
25-11-2023	3.89	3.29	4.13	2.71	9.80	1.74	3.43	76.98
26-11-2023	3.60	3.44	2.93	2.87	4.00	1.20	3.17	88.63
27-11-2023	2.98	3.19	3.73	1.94	8.51	1.20	2.92	113.71
28-11-2023	3.25	2.96	3.62	2.22	5.00	1.52	2.96	94.00
29-11-2023	3.81	3.24	4.52	2.61	10.00	1.80	3.47	89.30
30-11-2023	3.31	2.66	3.92	2.43	9.50	1.53	3.02	99.57
Maximum	6.66	5.82	7.46	4.51	10.00	3.78	5.79	113.71
Minimum	2.40	1.74	2.93	1.94	3.99	0.70	2.61	57.68
Average	4.17	3.83	5.07	3.12	8.72	2.18	3.99	78.64

MCP: Market Clearing Price (₹/kWh)

FSV: Final Scheduled Volume (MU)

Comparison of MCP w.r.t. Purchase Bid for 2,880 Time Blocks during the month of November, 2023 under RTM



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

Date	Max. FSV (MU)		Max. MCP (₹/kWh)		Min FSV (MU)		Min. MCP (₹/kWh)	
	Time Block	Value	Time Block	Value	Time Block	Value	Time Block	Value
01-11-2023	13:00 - 13:15	0.94	15:45 - 16:00	10.00	18:00 - 18:15	0.30	04:00 - 04:15	3.42
02-11-2023	12:45 - 13:00	1.07	16:30 - 16:45	10.00	18:00 - 18:15	0.26	04:00 - 04:15	3.43
03-11-2023	15:30 - 15:45	1.11	15:30 - 15:45	10.00	17:45 - 18:00	0.32	23:45 - 24:00	3.78
04-11-2023	17:00 - 17:15	1.31	16:45 - 17:00	10.00	00:30 - 00:45	0.45	21:00 - 21:15	3.21
05-11-2023	17:00 - 17:15	1.10	18:00 - 18:15	6.39	09:15 - 09:30	0.32	13:15 - 13:30	2.10
06-11-2023	16:45 - 17:00	0.98	17:45 - 18:00	9.50	04:30 - 04:45	0.41	01:15 - 01:30	2.43
07-11-2023	19:00 - 19:15	1.04	17:15 - 17:30	10.00	21:15 - 21:30	0.47	00:00 - 00:15	2.89
08-11-2023	14:45 - 15:00	1.12	17:30 - 17:45	10.00	17:45 - 18:00	0.38	01:15 - 01:30	3.22
09-11-2023	19:15 - 19:30	0.84	17:15 - 17:30	10.00	01:15 - 01:30	0.39	04:00 - 04:15	3.00
10-11-2023	04:45 - 05:00	0.87	18:00 - 18:15	10.00	05:30 - 05:45	0.44	21:45 - 22:00	2.50
11-11-2023	13:45 - 14:00	1.23	18:00 - 18:15	5.00	11:15 - 11:30	0.44	13:00 - 13:15	1.00
12-11-2023	15:30 - 15:45	1.94	17:45 - 18:00	3.99	19:15 - 19:30	0.51	13:00 - 13:15	0.70
13-11-2023	12:45 - 13:00	1.50	18:00 - 18:15	4.37	07:30 - 07:45	0.58	11:30 - 11:45	1.30
14-11-2023	19:45 - 20:00	1.10	17:45 - 18:00	5.51	11:00 - 11:15	0.52	00:15 - 00:30	2.00
15-11-2023	16:45 - 17:00	1.17	17:45 - 18:00	10.00	13:15 - 13:30	0.64	00:00 - 00:15	1.74
16-11-2023	16:30 - 16:45	1.46	17:30 - 17:45	10.00	00:30 - 00:45	0.49	03:30 - 03:45	2.13
17-11-2023	18:45 - 19:00	1.56	16:45 - 17:00	10.00	17:45 - 18:00	0.64	01:00 - 01:15	2.50
18-11-2023	15:30 - 15:45	1.19	17:00 - 17:15	10.00	17:30 - 17:45	0.58	03:15 - 03:30	2.92
19-11-2023	17:15 - 17:30	1.08	17:45 - 18:00	10.00	10:00 - 10:15	0.46	23:45 - 24:00	1.50
20-11-2023	14:45 - 15:00	1.15	16:45 - 17:00	10.00	05:45 - 06:00	0.53	00:15 - 00:30	1.20
21-11-2023	02:15 - 02:30	1.18	17:00 - 17:15	10.00	09:00 - 09:15	0.55	01:45 - 02:00	1.76
22-11-2023	22:45 - 23:00	1.25	17:00 - 17:15	10.00	08:30 - 08:45	0.66	03:30 - 03:45	3.00
23-11-2023	19:00 - 19:15	1.03	17:00 - 17:15	10.00	09:00 - 09:15	0.54	02:30 - 02:45	2.82
24-11-2023	17:00 - 17:15	1.19	17:15 - 17:30	10.00	03:45 - 04:00	0.55	19:30 - 19:45	2.00
25-11-2023	17:00 - 17:15	1.35	17:45 - 18:00	9.80	07:45 - 08:00	0.46	13:30 - 13:45	1.74
26-11-2023	21:30 - 21:45	1.24	09:00 - 09:15	4.00	07:45 - 08:00	0.50	19:30 - 19:45	1.20
27-11-2023	05:30 - 05:45	1.54	17:45 - 18:00	8.51	20:00 - 20:15	0.69	16:00 - 16:15	1.20
28-11-2023	17:45 - 18:00	1.78	17:45 - 18:00	5.00	11:15 - 11:30	0.65	00:00 - 00:15	1.52
29-11-2023	18:15 - 18:30	1.34	17:45 - 18:00	10.00	00:30 - 00:45	0.60	01:45 - 02:00	1.80
30-11-2023	17:45 - 18:00	1.46	17:45 - 18:00	9.50	00:30 - 00:45	0.64	13:15 - 13:30	1.53

MCP: Market Clearing Price (₹/kWh)

FSV: Final Scheduled Volume (MU)

Sellers and Buyers under Real Time Market (RTM) in November, 2023						
S. No.	Entity Name	Sell		Entity Name	Purchase	
		(MU)	Percent (%)		(MU)	Percent (%)
1	Bihar	382.13	16.20%	Telangana	572.15	24.25%
2	Rajasthan	252.47	10.70%	Maharashtra	261.68	11.09%
3	Madhya Pradesh	206.02	8.73%	Andhra Pradesh	229.46	9.73%
4	Uttar Pradesh	151.73	6.43%	J&K	175.55	7.44%
5	Chhattisgarh	100.81	4.27%	Kerala	162.84	6.90%
6	West Bengal	95.36	4.04%	Madhya Pradesh	123.75	5.25%
7	Odisha	93.28	3.95%	Uttar Pradesh	122.02	5.17%
8	Jharkhand	80.92	3.43%	Karnataka	74.92	3.18%
9	Assam	80.73	3.42%	DVC	74.68	3.17%
10	Kahalgaon	54.79	2.32%	Punjab	73.48	3.11%
11	Tamil Nadu	46.70	1.98%	Gujarat	64.44	2.73%
12	Delhi	36.37	1.54%	Tamil Nadu	57.58	2.44%
13	Maharashtra	36.01	1.53%	West Bengal	53.44	2.27%
14	Tripura	31.61	1.34%	Odisha	44.46	1.88%
15	SKS Power	26.46	1.12%	Delhi	39.95	1.69%
16	Farakka	25.26	1.07%	Uttarakhand	39.77	1.69%
17	Nabinagar Power	22.77	0.97%	Rajasthan	32.06	1.36%
18	NTPL	22.13	0.94%	ArcelorMittal Nippon	19.83	0.84%
19	Karnataka	21.85	0.93%	MB Power	16.94	0.72%
20	Sembcorp Gayatri	21.31	0.90%	Haryana	16.30	0.69%
21	Barh Stg-2	21.08	0.89%	Daman & Diu - Dadra &	13.02	0.55%
22	Himachal Pradesh	20.19	0.86%	Chhattisgarh	10.60	0.45%
23	Punjab	17.71	0.75%	Jindal Power Ltd. Stg-II	10.14	0.43%
24	Kahalgaon-II	17.49	0.74%	Meghalaya	9.88	0.42%
25	Singrauli	16.81	0.71%	Mahan Energy Limited	8.63	0.37%
26	Sikkim	15.46	0.66%	Jhabua Power	8.07	0.34%
27	Haryana	15.23	0.65%	Simhapuri Energy	7.94	0.34%
28	Rihand-I	14.85	0.63%	BHARAT	6.17	0.26%
29	Rihand-III	14.75	0.63%	Jindal Power	5.94	0.25%
30	Tanda Stg-2	13.86	0.59%	Manipur	2.71	0.11%
31	Gujarat	13.66	0.58%	Himachal Pradesh	2.58	0.11%
32	Kameng HEP	13.39	0.57%	Assam	2.32	0.10%
33	Pondicherry	13.39	0.57%	Railways	2.24	0.09%
34	DVC	13.06	0.55%	Adani Power Limited-	2.03	0.09%
35	Mahan Energy	11.72	0.50%	Ratnagiri Gas & Power	1.94	0.08%
36	Sasan UMPP	11.37	0.48%	Goa WR	1.85	0.08%
37	Rihand-II	11.23	0.48%	Jharkhand	1.78	0.08%
38	Adani Power	11.22	0.48%	Bihar	1.49	0.06%
39	NVVN (SNA) -	10.53	0.45%	Jindal Steel	1.32	0.06%
40	Uttarakhand	10.03	0.43%	Gandhar	1.05	0.04%
41	MB Power	9.93	0.42%	Kawas	0.62	0.03%
42	TRN Energy	9.75	0.41%	Tripura	0.49	0.02%
43	Adani Power	9.21	0.39%	Maruti Clean Coal	0.46	0.02%
44	Ramagundam Stg-	8.26	0.35%	Arunachal Pradesh	0.43	0.02%
45	J&K	7.77	0.33%	Sikkim	0.09	0.004%
46	Adhunik Power	7.62	0.32%	Goa SR	0.06	0.003%

47	NTECL Vallur	7.52	0.32%	Neyveli New Thermal	0.03	0.001%
48	Sembcorp Energy	7.08	0.30%	ACBIL	0.02	0.001%
49	Vindhyachal stg-4	6.93	0.29%			
50	IGSTPS JHAJJAR	6.78	0.29%			
51	Barh STPS Stg - I	6.54	0.28%			
52	JITPL	6.54	0.28%			
53	Telangana	6.16	0.26%			
54	Vindhyachal stg-1	6.09	0.26%			
55	Sipat Stg-1	6.05	0.26%			
56	Neyveli New	6.03	0.26%			
57	ACBIL	5.92	0.25%			
58	NLC TPS-II	5.56	0.24%			
59	Jhabua Power	5.48	0.23%			
60	Vindhyachal stg-3	5.31	0.23%			
61	Bongaigaon	5.21	0.22%			
62	Vindhyachal stg-2	4.97	0.21%			
63	NREL-Dayapar	4.69	0.20%			
64	Andhra Pradesh	4.64	0.20%			
65	NLC	4.61	0.20%			
66	Unchahar-IV	4.54	0.19%			
67	NLC TPS-II Expn	4.46	0.19%			
68	Vindhyachal stg-5	4.38	0.19%			
69	NLC TPS-II Stg-2	4.30	0.18%			
70	Kerala	4.20	0.18%			
71	Khargone STPP	4.04	0.17%			
72	Farakka Stg 3	4.02	0.17%			
73	Sipat Stg-2	3.94	0.17%			
74	Simhapuri Energy	3.91	0.17%			
75	Maruti Clean Coal	3.84	0.16%			
76	Mouda Stg-1	3.83	0.16%			
77	RKM Power	3.80	0.16%			
78	Palatana	3.76	0.16%			
79	Talcher Stg-2	3.67	0.16%			
80	Dadri TPS	3.45	0.15%			
81	Kopili 1 IN	3.42	0.14%			
82	Jindal Power Ltd.	3.38	0.14%			
83	NTPC Gadarwara	2.83	0.12%			
84	NTPC Sholapur	2.82	0.12%			
85	Simhadri Stg-2	2.51	0.11%			
86	KBUNL(MTPS-II)	2.49	0.11%			
87	Mouda Stg-2	2.33	0.10%			
88	Jindal Power	2.08	0.09%			
89	Jindal Steel	1.94	0.08%			
90	Arunachal Pradesh	1.81	0.08%			
91	Talcher	1.78	0.08%			
92	IL&FS	1.68	0.07%			
93	The Tata Power Co	1.66	0.07%			
94	DB Power	1.63	0.07%			
95	Dadri Stg-2	1.58	0.07%			
96	NTPC Kudgi	1.57	0.07%			
97	Ramagundam Stg-	1.56	0.07%			

98	Darlipalli	1.50	0.06%			
99	Unchahar-II	1.41	0.06%			
100	NTPC Lara	1.36	0.06%			
101	Korba	1.13	0.05%			
102	Manipur	1.09	0.05%			
103	Jorethang	0.98	0.04%			
104	GMR Warora	0.98	0.04%			
105	BALCO 2	0.96	0.04%			
106	Unchahar-III	0.85	0.04%			
107	Ratnagiri Gas &	0.84	0.04%			
108	RENEW SURYA	0.82	0.03%			
109	Singoli Bhagwati	0.78	0.03%			
110	Unchahar-I	0.78	0.03%			
111	AD Hydro	0.74	0.03%			
112	Ostro Kannada	0.70	0.03%			
113	Goa WR	0.65	0.03%			
114	Nagaland	0.63	0.03%			
115	Daman & Diu -	0.61	0.03%			
116	Renew Surya Ravi	0.53	0.02%			
117	Jaypee Nigrie	0.50	0.02%			
118	Tashiding HEP	0.49	0.02%			
119	Costal Energen	0.46	0.02%			
120	Korba Stg 3	0.43	0.02%			
121	AGBPP	0.35	0.01%			
122	NTPC North	0.28	0.01%			
123	Doyang HPS,	0.22	0.01%			
124	Kopili Power	0.22	0.01%			
125	Shree Cement	0.19	0.01%			
126	Karcham Wangtoo	0.16	0.01%			
127	ADANI WIND	0.16	0.01%			
128	Meghalaya	0.15	0.01%			
129	NSPCL Bhilai	0.14	0.01%			
130	Goa SR	0.11	0.005%			
131	Sorang HEP,	0.09	0.004%			
132	Pare Hydro Power	0.08	0.004%			
133	Simhadri Stg-1	0.05	0.002%			
134	AGTPP	0.05	0.002%			
135	Sainj HEP	0.04	0.002%			
136	GMR Kamalanga	0.03	0.001%			
137	Lanco Budhil	0.02	0.001%			
138	Chuzachen	0.01	0.001%			
139	Ranganadi Hydro	0.01	0.001%			
Total Volume of top 10		1,498.24	63.51%	Total Volume of top 10	1,870.53	79.29%
Total Volume in PXs		2,359.17		Total Volume in PXs	2,359.17	

Cross Border Electricity Transactions under Day Ahead Market (DAM) in IEX with Nepal and Bhutan during the month of November, 2023				
S. No	Delivery Date	Buy Volume By Nepal (MU)	Sell Volume by Nepal (MU)	Sell Volume By Bhutan(MU)
1	01-11-2023	-	9.40	0.97
2	02-11-2023	-	9.48	0.97
3	03-11-2023	-	9.55	0.97
4	04-11-2023	-	10.79	0.97
5	05-11-2023	-	9.40	0.97
6	06-11-2023	-	9.43	0.94
7	07-11-2023	-	9.57	0.92
8	08-11-2023	-	8.20	0.86
9	09-11-2023	-	7.83	0.86
10	10-11-2023	-	8.71	-
11	11-11-2023	-	9.62	-
12	12-11-2023	-	11.47	-
13	13-11-2023	-	11.47	-
14	14-11-2023	-	11.47	-
15	15-11-2023	-	11.47	-
16	16-11-2023	-	11.47	-
17	17-11-2023	-	11.34	-
18	18-11-2023	-	11.47	-
19	19-11-2023	-	11.47	-
20	20-11-2023	-	9.43	-
21	21-11-2023	-	8.26	-
22	22-11-2023	-	7.70	-
23	23-11-2023	-	7.25	-
24	24-11-2023	-	7.71	-
25	25-11-2023	-	6.99	-
26	26-11-2023	-	6.04	-
27	27-11-2023	-	4.92	-
28	28-11-2023	-	3.98	-
29	29-11-2023	-	3.69	-
30	30-11-2023	-	3.12	-
Total		-	262.68	8.43
Grand Total		271.11		

-: No transaction took place

Note: Cross Border Transactions of Electricity of 271.11 MU (i.e. 262.68 MU sold by Nepal, 8.43 MU sold by Bhutan) happened during November, 2023 in IEX, which is included under DAM Volume of November, 2023 in IEX. No Cross Border Drawal Transactions of Electricity happened with **Bhutan** for the month of November, 2023 in IEX under DAM.

Cross Border Electricity Transactions under Real Time Market (RTM) in IEX with Nepal and Bhutan during the month of November, 2023			
S. No	Delivery Date	Buy Volume By Nepal (MU)	Sell Volume By Nepal (MU)
1	01-11-2023	-	-
2	02-11-2023	-	0.17
3	03-11-2023	-	0.00
4	04-11-2023	-	0.00
5	05-11-2023	-	0.00
6	06-11-2023	-	0.00
7	07-11-2023	-	0.00
8	08-11-2023	-	0.00
9	09-11-2023	-	0.19
10	10-11-2023	-	1.00
11	11-11-2023	-	0.19
12	12-11-2023	-	0.87
13	13-11-2023	-	1.05
14	14-11-2023	-	1.05
15	15-11-2023	-	0.92
16	16-11-2023	-	0.74
17	17-11-2023	-	0.25
18	18-11-2023	-	0.33
19	19-11-2023	-	1.10
20	20-11-2023	-	0.64
21	21-11-2023	-	1.01
22	22-11-2023	-	0.68
23	23-11-2023	-	0.47
24	24-11-2023	-	0.03
25	25-11-2023	-	0.13
26	26-11-2023	-	0.59
27	27-11-2023	-	0.02
28	28-11-2023	-	0.10
29	29-11-2023	-	0.00
30	30-11-2023	-	0.00
Total		-	11.53
Grand Total		11.53	

-: No transaction took place

Note: Cross Border Transactions of Electricity of 11.53 MU (i.e. 11.53 MU sold by Nepal only) happened during November, 2023 in IEX, which is included under RTM Volume of November, 2023 in IEX. No Cross Border Transactions of Electricity happened with **Bhutan** for the month of November, 2023 in IEX under RTM.

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.
The 13 Bid areas 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 Avg. MCP of the days during the month on which transaction happened.
- 3. Bilateral Transaction** means a transaction for exchange of electrical energy (MWh) between a specified buyer and a specified seller, from a specified point of injection to a specified point of drawal for a fixed or varying quantum of power (MW) for any time block during a month.
- 4. Daily Average MCP** is the average of MCP of all 96 Time Blocks of the day during which transaction happened.
- 5. Day-Ahead Market (DAM)** means a market where Day Ahead Contracts are transacted on the Power Exchanges, wherein Collective Transactions occur on day (T) and delivery of electricity is on the next day (T+1).
- 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 for Solar, Non-Solar and Hydro Renewable Energy (RE) generation.

10. **Green Day Ahead Market (GDAM)** is based on the principles of current Day Ahead Market (DAM), where market participants purchase and sell electricity generated from renewable sources.
11. **Long Duration Contracts** on the power exchanges is a product segment under which the participants are allowed to trade for delivery of power upto 90 Days (Delivery Starting from T+2 to T+90 Days).
12. **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.
13. **Real Time Market (RTM)** means a market where Real-Time Contracts are transacted on the Power Exchange(s), i.e. a contract other than Day Ahead Contract or Intraday Contract or Contingency Contract. Under RTM collective transactions occur on day (T) or day (T-1) and delivery of electricity is on day (T) for a specified delivery period.
14. **Term Ahead Market (TAM)** means a market where Term Ahead Contracts are transacted on the Power Exchange(s), i.e. a contract wherein transactions occur on day (T) and physical delivery of electricity is on a day more than one day ahead (T + 2 or more).