

# Monthly Report on Short-term Transactions of Electricity in India

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## Abbreviations

<b>Abbreviation</b>	<b>Expanded Version</b>
ABSP_ANTP	Acme Bhiwadi Solar Power Private Limited, Anantpur
ACBIL	ACB (India) Limited
ACP	Area Clearing Price
ACV	Area Clearing Volume
ACME_SLR	ACME Solar Power Project
ACME_RUMS	Acme Rewa Ultra Mega Solar Project
ADANI GREEN	Adani Green Energy Limited
ADANIHB_SLR	Adani Hybrid Energy Jaisalmer One Limited (Solar)
ADANI_SLR 4	Adani Solar Energy Four Private Limited
ADANIHB_WIND	Adani Hybrid Energy Jaisalmer One Limited (Wind)
ADY1_PVGD	Adyah Solar Energy Pvt Ltd., Block 1 Pavagada Solar Park
ADY2_PVGD	Adyah Solar Energy Pvt Ltd., Block 2 Pavagada Solar Park
ADY3_PVGD	Adyah Solar Energy Pvt Ltd., Block 3 Pavagada Solar Park
ADY6_PVGD	Adyah Solar Energy Pvt Ltd., Block 6 Pavagada Solar Park
ADY10_PVGD	Adyah Solar Energy Pvt Ltd., Block 10 Pavagada Solar Park
ADY13_PVGD	Adyah Solar Energy Pvt Ltd., Block 13 Pavagada Solar Park
AGEMPL BHUJ	Adani Green Energy (MP) Ltd., Bhuj
AHEJOL_S_FTG2	Adani Hybrid Energy Jaisalmer One Limited (SOLAR)
AHEJOL_W_FTG2	Adani Hybrid Energy Jaisalmer One Limited (WIND)
AHEJ2L_SOLAR	Adani Hybrid Energy Jaisalmer Two Limited (Solar)
AHEJ3L_SOLAR	Adani Hybrid Energy Jaisalmer Three Limited (Solar)
AHEJ4L_SOLAR	Adani Hybrid Energy Jaisalmer Four Limited-Hybrid Solar
AHEJ4L_WIND	Adani Hybrid Energy Jaisalmer Four Limited-Hybrid Wind
AHSP_ANTP	Acme Hisar Solar Power Private Limited, Anantpur
AKS_PVGD	ACME Kurukshetra Solar Energy Pvt. Ltd
AKSP_ANTP	Acme Karnal Solar Power Private Limited, Anantpur
ALFANAR_BHUJ	Alfanar Group Wind Project, Bhuj, Gujarat
AMPS Hazira	Arcelor Mittal Nippon Steel, Hazira
APTEL	Appellate Tribunal for Electricity
ARERJL_SLR	Adani Renewable Energy Park Rajasthan Ltd.
ARINSUM_RUMS	Solenergi Rewa Ultra Mega Solar Project
ARS_PVGD	ACME REWARI Solar Power Pvt Ltd.
ARTPP	Adani Power Limited - Raipur TPP
ASEJTL_SLR	Adani Solar Energy Jodhpur Two Ltd.
AVAADA1_PVGD	Avaada Solar Energy Private Ltd., Pavagada Project 1
AVAADA2_PVGD	Avaada Solar Energy Private Ltd., Pavagada Project 2
AVADARJHN_SLR	Avaada Rjhn Private Limited_Solar
AYANA_NPKUNTA	Ayana Power, NP Kunta
AZURE_ANTP	Azure Power, Anantpur
AZURE_PVGD	Azure Power, Pavagada
AZURE_SLR	Azure Power Solar Power Project
AZURE34_SLR	Azure Power 34 Pvt. Ltd. Solar Power Project
AZURE43_SLR	Azure Power Forty Three Private Limited
BALCO	Bharat Aluminum Company Limited
BARC	Bhabha Atomic Research Centre
BBMB	Bhakra Beas Management Board
BETAM_TCN	Betam Wind Energy Private Limited, Tuticorin
BHADRAVATHI HVDC	Bhadravathi High Voltage Direct Current Link
BRBCL	Bhartiya Rail Bijlee Company Limited
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CGPL	Coastal Gujarat Power Limited

CHUKHA HEP	Chhukha Hydroelectric Project, Bhutan
CHUZACHEN HEP	Chuzachen Hydro Electric Power Project
CLEAN_SLR	Clean Solar Power Pvt. Ltd
CLEANSPL_SLR	Clean Solar Jodhpur Pvt Ltd
COASTGEN	Coastal Energen Private Limited
DAGACHU	Dagachhu Hydro Power Corporation
DAM	Day Ahead Market
DB POWER	Diligent Power Pvt. Ltd.
DCPP	Donga Mahua Captive Power Plant
DD&DNH	Daman and Diu & Dadar Nagar Haveli
DGEN MEGA POWER	DGEN Mega Power Project
DGPCL Bhutan	Druk Green Power Corporation Ltd., Bhutan
DHARIWAL POWER	Dhariwal Power Station
DIKCHU HEP	Dikchu Hydro-electric Project, Sikkim
DOYANG HEP	Doyang Hydro Electric Project
DSM	Deviation Settlement Mechanism
DVC	Damodar Valley Corporation
EDEN_SLR	Eden RE Cite Private limited
EMCO	EMCO Energy Limited
ESPL_RADHANESDA	Electro Solaire Private Limited, Radhanesda
ESSAR POWER	Essar Power Limited
ESSAR STEEL	Essar Steel Ltd
FORTUM1_PVGD	Fortum Finnsurya Energy Private Ltd, Pavagada Project 1
FORTUM2_PVGD	Fortum Finnsurya Energy Private Ltd, Pavagada Project 2
FRV_ANTP	Fotowatio Renewable Ventures, Anantapur
FRV_NPK	Fotowatio Renewable Ventures, NP Kunta
GIPCL_RADHANESDA	Gujarat Industries Power Company Ltd, Radhanesda
GIWEL_BHUJ	Green infra wind energy Limited, Bhuj
GIWEL_TCN	Green Infra Wind Energy Limited, Tuticorin
GMR CHHATTISGARH	GMR Chhattisgarh Energy Limited
GMR KAMALANGA	GMR Kamalanga Energy Ltd.
G-DAM	Green Day Ahead Market
G-TAM	Green Term Ahead Market
HPX	Hindustan Power Exchange Limited
HP-DAM	High Price Day Ahead Market
HVDC ALPD	Alipurduar High Voltage Direct Current Link
HVDC CHAMPA	Champa-Kurukshetra High Voltage Direct Current Link
HVDC PUS	Pasauli High Voltage Direct Current Link
HVDC RAIGARH	Raigarh-Pugalur High Voltage Direct Current Link
IEX	Indian Energy Exchange Limited
IGSTPS	Indira Gandhi Super Thermal Power Station Jhajjar
IL&FS	Infrastructure Leasing & Financial Services Limited
INOX_BHUJ	INOX Wind Limited, Bhuj, Gujarat
J&K	Jammu & Kashmir
JAYPEE NIGRIE	Jaypee Nigrie Super Thermal Power Project
JHABUA POWER MP	Jhabua Thermal Power Project
JINDAL POWER	Jindal Power Limited
JINDAL STAGE-II	Jindal Power Ltd Stage II
JITPL	Jindal India Thermal Power Ltd.
JORETHANG	Jorethang Loop Hydroelectric Power Project
JSW_RENEW_2	JSW Renew Energy Two Limited
KAPP 3&4	Kakrapar Atomic Power Station Unit 3 & 4
KARCHAM WANGTOO	Karcham Wangtoo H.E. Project
KORBA WEST POWER	Korba West Power Company Limited

KOTESHWAR	Koteshwar Hydro Power project
KREDL_PVGD	Karnataka Renewable Energy Development Ltd,Pavagada
KSK MAHANADI	KSK Mahanadi Power Ltd
KSMPL_SLR	Kilaj Solar (Maharashtra) Private Limited
KURICHU HEP	Kurichhu Hydro-electric Power Station, Bhutan
LANKO_AMK	LancoAmarkantak Power Private Limited
LANKO BUDHIL	LancoBudhil Hydro Power Private Limited
LANKOKONDAPALLY	Lanco Kondapally Power Private Limited
LOKTAK	Loktak Power Project
MAHINDRA_RUMS	Mahindra Rewa Ultra Mega Solar Project
MAHOBA_SLR	Mahoba Solar Power Project
MALANA	Malana Hydroelectric Plant
MANGDECHU HEP	Mangdechhu Hydroelectric Project, Mangdechhu River, Bhutan
Maruti Coal	Maruti Clean Coal and Power Limited
MB POWER	MB Power Ltd
MEENAKSHI	Meenakshi Energy Private Limited
MP	Madhya Pradesh
MRPL	Mahindra Renewables Private Limited
MTPS	TATA Power Mundra Thermal Power Station
MTPS II	Muzaffarpur Thermal Power Station – Stage II
MYTRAH_TCN	Mytrah Energy (India) Private Limited,Tuticorin
MU	Million Units
NAPP	Narora Atomic Power Plant
NCR ALLAHABAD	North Central Railway, Allahabad
NEEPCO	North Eastern Electric Power Corporation Limited
NEP	Nepal
NFL	National Fertilisers Limited
NHPC STATIONS	National Hydro Electric Power Corporation Ltd. Stations
NJPC	Nathpa Jhakri Hydroelectric Power Station
NLC	Neyveli Lignite Corporation Limited
NLDC	National Load Dispatch Centre
NPGC	Nabinagar Power Generating Company (Pvt.) Limited
NSPCL	NTPC - SAIL Power Company Private Limited
NTECLVallur	NTPC Tamil Nadu Energy Company Limited Vallur
NTPC_ANTP	NTPC Anantapur
NTPC STATIONS	National Thermal Power Corporation Ltd. Stations
NTPL	NLC Tamil Nadu Power Limited
NVVN	NTPC Vidyut Vyapar Nigam Limited
OCF	Order Carry Forward
ONGC Platana	ONGC Tripura Power Company
OPGC	Odisha Power Generation Corporation
ORANGE_TCN	Orange Renewable Power Pvt. Ltd,Tuticorin
OSTRO	Ostro Energy Private Limited
OTC	Over The Counter
PARAM_PVGD	Parampujya Solar Energy Private Ltd
PARE HEP	Pare hydroelectric project, Arunachal Pradesh
PX	Power Exchange
PXIL	Power Exchange India Limited
RAIL	Indian Railways
RAMPUR HEP	Rampur Hydro Electric Power Project
RANGIT HEP	Rangit Hydroelectric power project
RANGANADI HEP	Ranganadi Hydro Electric Power Project, Arunachal Pradesh
RAP-B	Rajasthan Atomic Power Plant-B
RAP-C	Rajasthan Atomic Power Plant-C

REC	Renewable Energy Certificate
REGL	Raigarh Energy Generation Limited
RENEW_BHACHAU	ReNew Power Limited, Bhachau
RENEW_BHUJ	ReNew Power Limited, Bhuj
RENEW_PVGD	ReNew Wind Energy (TN2) Private Limited
RENEW_SLR_BKN	Renew Solar Bikaner
RENEW_SR_SLR	Renew Surya Ravi Private Limited (Solar)
RENEWJH_SLR	Renew Solar Energy (Jharkhand Three) Private Limited
RENEWURJA_SLR	ReNew Solar Urja Private Limited
RGPPL_IR	Ratnagiri Gas and Power Private Ltd., supply to Indian Railways
RGPPL_OTHER	Ratnagiri Gas and Power Private Limited
RLDC	Regional Load Dispatch Centre
RONGNICHU HEP	Rongnichu Hydro Electric Power Project
RPREL	Raipur Energen Limited
RSTPS_FSPP	NTPC Ramagundam STPS- Floating Solar PV Project
RTC	Round The Clock
RTM	Real Time Market
SasanUMPP	Sasan Ultra Mega Power Project
SB_SLR	Soft Bank Solar
SB6_POKARAN	SB Energy Six Private Limited, Pokaran
SBG_CLEANTECH_SLR	SBG Cleantech Ltd
SBG_NPK	SB Energy Solar Private Limited, NP Kunta
SBG_PVGD	SB Energy Solar Private Limited, Pavagada
SBSR_SLR	SBSR Power Cleantech Eleven Private Limited
SEMBCORP	Sembcorp Gayatri Power Ltd
SIMHAPURI	Simhapuri Energy Private Limited
SKS Power	SKS Power Generation Chhattisgarh Limited
SESPL	Srijan Energy Systems Pvt. Ltd.
SINGOLI BHATWARI HEP	Singoli-Bhatwari Hydroelectric Project, Uttarakhand
SKRPL	Sitac Kabini Renewables Pvt. Ltd.
SPRNG_NPKUNTA	Sprng Energy, NP Kunta
SPRING_PUGALUR	Spring Solar Power Private Limited, Pugalur
TALA HEP	Tala Hydroelectric Project, Bhutan
TASHIDENG HEP	Tashiding Hydro Electric Project, Sikkim
TATA_ANTP	TATA Power Anantapur
TATA_PVGD	Tata Power Renewable Energy Ltd
TATA_SLR	Tata Solar
TEESTA STG3	Teesta Stage 3 Hydro Power Project
TEHRI	Tehri Hydro Electric Power Project
TAM	Term Ahead Market
THAR1_SLR	Thar Surya Ravi One Pvt Ltd
THERMAL POWERTECH	Thermal Powertech Corporation India Limited
TPREL_RADHANESDA	Tata Power Renewable Energy Limited, Radhanesda
TPSL	TP Saurya Limited
VINDHYACHAL HVDC	Vindhyachal High Voltage Direct Current Link
YARROW_PVGD	Yarrow Infra Structure Private Ltd



## **1. Introduction**

1.1. A well-functioning electricity market requires an effective market monitoring process. The monthly report on short-term transactions of electricity, published by CERC since 2008 as part of its market monitoring process, provides a snapshot of key aspects of short-term transactions of electricity in India. Here, “short-term transactions of electricity” refers to the contracts of less than one year period for electricity transacted (inter-State) - through Trading Licensees, directly by the Distribution Licensees and on Power Exchanges (Indian Energy Exchange Ltd (IEX), Power Exchange India Ltd (PXIL) and Hindustan Power Exchange Ltd (HPX)). “DSM Volume” includes the volume recorded under Deviation Settlement Mechanism. The main objectives of the report are: (i) to analyse the volume and price of the short-term transactions of electricity; (ii) to assess the competition among the market players; (iii) to analyse the effect of congestion on the volume of electricity transacted through power exchanges; (iv) to provide information on volume and price of Renewable Energy Certificates (RECs) transacted through power exchanges; and (v) to disseminate all other relevant market information. The analysis of short-term transactions of electricity and DSM volume during the month of **July 2023** is presented in the following sections.

## **2. Volume of Short-term Transactions of Electricity and DSM**

2.1. During July 2023, total electricity generation, excluding generation from renewable and captive power plants in India, was 125912.87 MU (Table-1). Of the total electricity generation, 15.69% was transacted through short-term and DSM, comprising of 8.50% through bilateral (through traders and term-ahead contracts on power exchanges, and directly between distribution companies), followed by 5.34% through power exchanges {Day Ahead Market (DAM) (including G-DAM) and Real Time Market (RTM)} and 1.86% through DSM (Table-1 & Figure-1).

2.2. Of the total short-term transactions and DSM volume (19761.73 MU), 54.14% was transacted through bilateral (33.18% through traders and term-ahead contracts on power exchanges, and 20.96% directly between distribution companies), followed by 34.00% through power exchanges {DAM (including G-DAM & HP-DAM) and RTM} and 11.86% through DSM (Table-1 & Figure-2). The daily volume of short-term transactions is shown in Table-27. Figure-4 shows the daily volume trend for short-term transactions and DSM volume.

2.3. Of the total volume of electricity transacted through power exchanges, 45.95% of the volume was transacted in DAM (including G-DAM & HP-DAM), followed by 27.93% in RTM and 26.12% in Term Ahead Market (TAM) (including G-TAM) (Figure-3).

2.4. The share of electricity traded by each trading licensee is given in Table-2 & Figure-5. The volume of electricity transacted by the trading licensees includes bilateral transactions and transactions undertaken through power exchanges. There were 51 trading licensees as of July 2023. Of which, 30 trading licensees were engaged in short-term trading. The top 5 trading licensees, namely PTC India Ltd., NTPC Vidyut Vyapar Nigam Ltd., Tata Power Trading Company (P) Ltd., Adani Enterprises Ltd. and Arunachal Pradesh Power Corporation (P) Ltd., had a share of 77.78% in the total volume of electricity traded by all the licensees.

2.5. Herfindahl-Hirschman Index (HHI), a commonly accepted index to calculate market concentration, has been used to measure competition among trading licensees. An increase in the HHI generally indicates a decrease in competition and an increase in market concentration, and vice versa. The HHI below 0.15 indicates non-concentration, HHI between 0.15 and 0.25 indicates moderate concentration, and HHI above 0.25 indicates high concentration. The HHI has been computed based on the volume of electricity traded (inter-State & intra-State) by inter-State trading licensees, and it was 0.1667 for the month of July 2023, which indicates a moderate concentration of market power (Table-2).

2.6. The volume of electricity transacted in the DAM of IEX was 3966.20 MU. No electricity was transacted through DAM of PXIL and HPX. The volume of total buy bids and sell bids was 7270.73 MU and 8716.38 MU, respectively, in IEX, while the same was 7.40 MU and 66.34 MU, respectively, in PXIL. No bids were received in HPX.

2.7. Of the total volume of electricity transacted in the DAM of IEX, the volume purchased by the neighbouring countries of India was 6.62 MU, and the volume was sold by the neighbouring countries of India was 251.12 MU under the Cross Border Trade of electricity through power exchange (Table-34). No Cross Border transaction of electricity was undertaken through PXIL and HPX.

2.8. The volume of electricity transacted in the G-DAM of IEX was 212.14 MU, while no electricity was transacted in the G-DAM of PXIL and HPX. The volume of total buy bids and

sell bids was 965.09 MU and 550.76 MU, respectively, in IEX, while no bids were received in PXIL and HPX.

2.9. The volume of electricity transacted in the HP-DAM of IEX was 0.30 MU. The volume of total buy bids and sell bids was 0.31 MU and 765.16 MU, respectively, in IEX.

2.10. The volume of electricity transacted in the RTM of IEX was 2540.45 MU, while no electricity was transacted in the RTM of PXIL and HPX. The volume of total buy bids and sell bids was 4196.58 and 4395.18 MU, respectively in IEX. No bids were received in PXIL and HPX. The variation in the volume of buy bids and sell bids placed through power exchanges shows variation in the demand and supply position.

2.11. The volume of electricity transacted in the TAM of IEX, PXIL and HPX was 1035.72 MU, 393.78 MU and 793.03 MU, respectively (Table-9, Table-10 & Table-11). The volume of electricity transacted in the Green Term Ahead Market (G-TAM) of IEX, PXIL and HPX was 62.46 MU, 14.86 MU and 75.89 MU, respectively (Table-12, Table-13 & Table-14).

### **3. Price of Short-term Transactions of Electricity and DSM charges**

3.1. **Price of electricity transacted through Traders:** The minimum, maximum and weighted average sale prices for the electricity transacted through traders were ₹2.70/kWh, ₹11.05/kWh and ₹6.85/kWh, respectively (Table-3). The weighted average sale prices were also computed for the electricity transacted during Round the Clock (RTC) and Off-peak periods separately, and the sale prices were ₹6.88/kWh and ₹6.62/kWh, respectively. No electricity was transacted through traders during Peak periods (Table-4).

3.2. **Price of electricity transacted through Power Exchanges:** The minimum, maximum and weighted average prices for the electricity transacted in the DAM of IEX were ₹1.00/kWh, ₹10.00/kWh and ₹4.47/kWh, respectively (Table-5). The minimum, maximum and weighted average prices for the electricity transacted in the G-DAM of IEX were ₹1.83/kWh, ₹10.00/kWh and ₹4.31/kWh, respectively (Table-6). The minimum, maximum and weighted average prices for the electricity transacted in the HP-DAM of IEX were ₹10.00/kWh, ₹20.00/kWh and ₹10.91/kWh, respectively (Table-7). The minimum, maximum and weighted average prices for the electricity transacted in the RTM of IEX were ₹0.49/kWh, ₹10.00/kWh and ₹4.55/kWh, respectively (Table-8). The weighted average price of electricity transacted in

the TAM of IEX, PXIL and HPX was ₹5.35/kWh, ₹5.70/kWh and ₹5.56/kWh, respectively (Table-9, Table-10 and Table-11). The weighted average price of electricity transacted in the G-TAM of IEX, PXIL and HPX was ₹4.74/kWh, ₹4.62/kWh and ₹4.83/kWh, respectively (Table-12, Table-13 and Table-14). No electricity was transacted in DAM, G-DAM & RTM of PXIL and in DAM, G-DAM and RTM of HPX.

3.3. **DSM Charges:** The minimum, maximum and average charge under DSM was ₹1.30/kWh, ₹10.39/kWh and ₹5.14/kWh, respectively (Table-30).

3.4. The comparison of weighted average prices of electricity transacted through trading licensees and power exchanges is shown in Figure-6. The daily prices of electricity transacted through various segments at power exchanges and their comparison are shown in Table-28(a), (b) & (c) and Figure-7. The daily volume and charges under DSM are shown in Table-30.

#### **4. Trading Margin**

4.1. As per the CERC (Procedure, Terms and Conditions for grant of trading licence and other related matters) Regulations 2020, the trading licensees are allowed to charge a trading margin of not less than 0 paise/kWh and upto 7 paise/kWh. The weighted average trading margin charged by the trading licensees for bilateral transactions during the month was ₹0.026/kWh.

#### **5. Volume of Short-term Transactions of Electricity (Regional Entity<sup>1</sup>-Wise)**

5.1. Of the total bilateral transactions, the top 5 regional entities/states sold 32.86% of the volume. These were Karnataka, Himachal Pradesh, Madhya Pradesh, Teesta Stage 3 Hydro Power Project and Andhra Pradesh (Table-15). The top 5 regional entities/states purchased 65.45% of the volume, and these were Punjab, Haryana, Uttar Pradesh, Delhi and Maharashtra (Table-16).

5.2. Of the total DAM transactions at power exchanges, the top 5 regional entities/states sold 32.88% of the volume, and these were Uttar Pradesh, Haryana, Nepal, Himachal Pradesh and Teesta Hydro Power Project (Table-17). The top 5 regional entities/states purchased

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<sup>1</sup> In case of a State, the entities which are “selling” also include generators connected to State Grid and the entities which are “buying” also include open access consumers.

61.24% of the volume, and these were West Bengal, Gujarat, Telangana, Rajasthan and Uttar Pradesh (Table-18).

5.3. Of the total G-DAM transactions at power exchanges, the top 5 regional entities/states sold 58.68% of the volume, and these were Andhra Pradesh, Maharashtra, Renew Surya Ravi Private Limited (Solar), Karnataka and Jammu & Kashmir (Table-19). The top 5 regional entities/states purchased 62.87% of the volume, and these were Damodar Valley Corporation, Maharashtra, Tamil Nadu, Uttar Pradesh and Gujarat (Table-20).

5.4. Of the total HP-DAM transactions at power exchanges, only 2 regional entities/states sold 100.00% of the volume, and these were Gujarat and Tamil Nadu (Table-21). Only 1 regional entities/states purchased 100.00% of the volume, and it was Meghalaya (Table-22).

5.5. Of the total RTM transactions at power exchanges, the top 5 regional entities/states sold 38.47% of the volume, and these were Madhya Pradesh, Jammu & Kashmir, Bihar, Punjab and NTPC Stations (Eastern Region) (Table-23). The top 5 regional entities/states purchased 53.88% of the volume, and these were Telangana, West Bengal, Rajasthan, Andhra Pradesh and Kerala (Table-24).

5.6. The total volume of net short-term transactions of electricity (Regional entity-wise), i.e., the volume of net transactions through bilateral and power exchanges are shown in Table-25 & 29. The top 5 electricity selling regional entities/states of short-term transactions were Karnataka, Himachal Pradesh, Madhya Pradesh, Teesta Hydro Power Project and Essar Power Limited. The top 5 electricity purchasing regional entities/states of short-term transactions were Punjab, West Bengal, Haryana, Uttar Pradesh and Telangana.

5.7. Of the total under-drawal/ over-injection volume under DSM in July 2023, the top 5 regional entities/states accounted for 26.75% of the volume, and these were Maharashtra, Gujarat, Tamil Nadu, Punjab and Madhya Pradesh (Table-31). The top 5 regional entities/states under DSM accounted for 24.02% of the total over-drawal/ under-injection volume, and these were Bhadravathi HVDC, Sterlite, NTPC Stations (Northern Region), Lanco Kondapally Power Private Limited and Gujarat (Table-32).

## **6. Congestion<sup>2</sup> on Inter-State Transmission Corridor for Day-Ahead Market and Real Time Market on Power Exchanges**

6.1. Power exchanges use a price discovery mechanism in which the aggregate demand and supply are matched to arrive at an unconstrained market price and volume. This process assumes that there is no congestion in the inter-State transmission system between different regions. However, in reality, the system operator (NLDC), in coordination with RLDCs, limits the flow (due to congestion) in the inter-State transmission system. In such a situation, power exchanges adopt a mechanism called “Market Splitting”<sup>3</sup>.

6.2. The volume of electricity that could not be cleared due to congestion & other reasons and could not be transacted through power exchanges is the difference between unconstrained cleared volume and actual cleared volume. During the month of July 2023, congestion was experienced in RTM on IEX only.

6.3. The volume of electricity that could not be cleared due to congestion in RTM of IEX was 0.03% of the unconstrained cleared volume. In terms of time, congestion occurred was 0.20% in RTM of IEX during the month. (Table-26).

## **7. Volume and Price of Renewable Energy Certificates (RECs)**

7.1. The concept of Renewable Energy Certificates (RECs) seeks to address the mismatch between the availability of renewable energy and the requirement of the obligated entities to meet their renewable purchase obligation by purchasing green attributes of renewable energy remotely located in the form of RECs. The REC mechanism is a market-based instrument to promote renewable sources of energy and the development of the electricity market.

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<sup>2</sup> “Congestion” means a situation where the demand for transmission capacity exceeds the available transfer capability

<sup>3</sup> “Market Splitting” is a mechanism adopted by Power Exchanges, where the market is split in the event of transmission congestion, into predetermined (by NLDC) bid areas or zones, which are cleared individually at their respective area prices such that the energy balance in every bid area is reached based upon the demand and supply in individual bid areas and using the available transmission corridor capacity between various bid areas simultaneously. As a result of this market splitting the price of electricity in the importing region, where demand for electricity is more than supply, becomes relatively higher than the price of electricity in the exporting region.

7.2. One REC is equivalent to 1 MWh electricity injected into the grid from renewable energy sources. The REC is exchanged only in the power exchanges approved by CERC within the band of a floor price and forbearance (ceiling) price as notified by CERC from time to time. The first REC trading was held on power exchanges in May 2011.

7.3. The categorisation of RECs has been dispensed with on introduction of the concept of multiplier under the CERC (Terms and Conditions for Renewable Energy Certificates for Renewable Energy Generation) Regulations, 2022, brought into effect from 05.12.2022. Accordingly, the power exchanges deactivated the Solar and Non-Solar REC contract for trading w.e.f. December 2022. A new contract named “REC” has been made available for trading on the power exchanges. Further, RECs can also be exchanged through trading licensees as per the REC Regulations 2022.

7.4. The details of REC transactions for the month of July 2023 are shown in Table-33. The market clearing volume of RECs transacted on IEX, PXIL and HPX were 623982, 100630 and 600, respectively. The weighted average market clearing price of these RECs was ₹650/MWh in IEX, ₹590/MWh in PXIL and ₹675/MWh in HPX.

7.5. The gap between the volume of buy and sell bids of RECs placed through power exchanges shows the variation in demand for the RECs. The ratio of buy bids to sell bids was 0.07, 0.04 and 0.002 in IEX, PXIL and HPX respectively.

7.6. The volume of RECs transacted through Trading Licensees in July 2023 was 133367. The weighted average trade price for the RECs transacted through traders was ₹ 579/MWh.

## **8. Inferences:**

- a) The percentage of short-term transactions of electricity and DSM volume to total electricity generation was 15.69%.
- b) Of the total short-term transactions and DSM volume (19761.73 MU), 54.14% was transacted through bilateral (33.18% through traders and term-ahead contracts on power exchanges, and 20.96% directly between distribution companies), followed by 34.00% through power exchanges {DAM (including G-DAM & HP-DAM) and RTM} and 11.86% through DSM.

- c) Of the total volume of electricity transacted through power exchanges, 45.95% of the volume was transacted in DAM (including G-DAM & HP-DAM), followed by 27.93% in RTM and 26.12% in Term Ahead Market (TAM) (including G-TAM).
- d) The top 5 trading licensees had a share of 77.78% in the total volume traded by all the trading licensees.
- e) The Herfindahl Hirschman Index computed for the volume of electricity traded by trading licensees was 0.1667, indicating a moderate concentration of market power.
- f) The weighted average sale price of electricity transacted through trading licensees was ₹6.85/kWh.
- g) The weighted average price of electricity transacted in DAM of IEX and PXIL was ₹4.47/kWh, while no electricity was transacted in DAM of PXIL & HPX. The weighted average price of electricity transacted in G-DAM of IEX was ₹4.31/kWh, while no electricity was transacted in G-DAM of PXIL and HPX. The weighted average price of electricity transacted in HP-DAM of IEX was ₹10.91/kWh. The weighted average price of electricity transacted in RTM of IEX was ₹4.55/kWh. No electricity was transacted in the RTM of PXIL and HPX.
- h) The weighted average price of electricity transacted in TAM of IEX, PXIL and HPX was ₹5.35/kWh, ₹5.70/kWh and ₹5.56/kWh, respectively. The weighted average price of electricity transacted in G-TAM of IEX, PXIL and HPX was ₹4.74/kWh, ₹4.62/kWh and ₹4.83/kWh, respectively.
- i) The average charge under DSM was ₹5.14/kWh.
- j) The weighted average trading margin charged by the trading licensees for bilateral transactions was ₹0.026/kWh.
- k) The top 5 electricity selling regional entities/states of short-term transactions were Karnataka, Himachal Pradesh, Madhya Pradesh, Teesta Hydro Power Project and Essar Power Limited. The top 5 electricity purchasing regional entities/states of short-term transactions were Punjab, West Bengal, Haryana, Uttar Pradesh and Telangana.



- l) The top 5 under-drawing/over-injecting regional entities/states under DSM were Maharashtra, Gujarat, Tamil Nadu, Punjab and Madhya Pradesh. The top 5 over-drawing/under-injecting regional entities/states under DSM were Bhadravathi HVDC, Sterlite, NTPC Stations (Northern Region), Lanco Kondapally Power Private Limited and Gujarat.
- m) During the month of July 2023, congestion was experienced in RTM of IEX only. The volume of electricity that could not be cleared due to congestion in RTM of IEX was 0.03% of the unconstrained cleared volume, respectively.
- n) The market clearing volume of RECs transacted on IEX, PXIL and HPX were 623982, 100630 and 600, respectively. The weighted average market clearing price of these RECs was ₹650/MWh in IEX, ₹590/MWh in PXIL and ₹675/MWh in HPX. The volume of RECs transacted through Trading Licensees in July 2023 was 133367. The weighted average trade price for the RECs transacted through traders was ₹ 579/MWh.

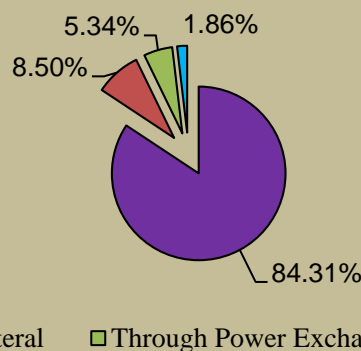
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**Table-1: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY AND DSM (ALL INDIA), JULY 2023**

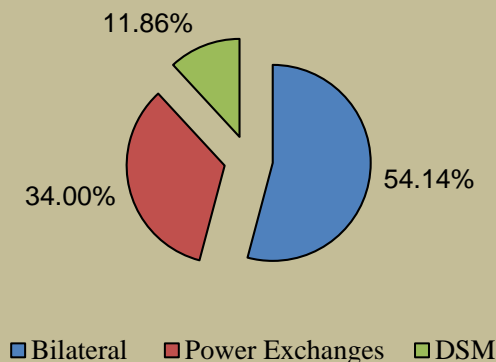
Sr. No	Transaction	Volume (MU)	% to short-term transactions and DSM Volume	% to Total Generation
<b>A</b>	<b>Short-term transactions</b>			
1	Bilateral	<b>10698.37</b>	<b>54.14</b>	<b>8.50</b>
	(i) Through Traders and PXs	6557.12	33.18	5.21
	(ii) Direct	4141.25	20.96	3.29
2	Through Power Exchanges	<b>6719.10</b>	<b>34.00</b>	<b>5.34</b>
	(i) IEX			
	(a) DAM	3966.20	20.07	3.15
	(b) RTM	2540.45	12.86	2.02
	(c) GDAM	212.14	1.07	0.17
	(d)HP-DAM	0.30	0.002	0.0002
	(ii) PXIL			
	(a) DAM	0.00	0.00	0.00
	(b) RTM	0.00	0.00	0.00
	(c) GDAM	0.00	0.00	0.00
	(ii) HPX			
	(a) DAM	0.00	0.00	0.00
	(b) RTM	0.00	0.00	0.00
	(c) GDAM	0.00	0.00	0.00
<b>B</b>	<b>Through DSM</b>	<b>2344.26</b>	<b>11.86</b>	<b>1.86</b>
	<b>Total Short-term transactions and DSM</b>	<b>19761.73</b>	<b>-</b>	<b>15.69</b>
	<b>Total Generation</b>	<b>125912.87</b>	<b>-</b>	<b>-</b>

Source: NLDC

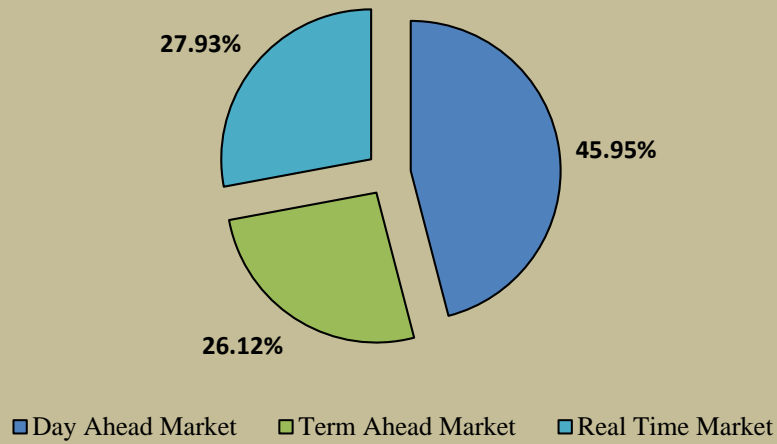
**Figure-1: Volume of various kinds of Electricity Transactions in Total Electricity Generation, July 2023**



**Figure-2: Volume of Short-term Transactions of Electricity and DSM Volume, July 2023**



**Figure-3: Volume transacted in different markets segments on Power Exchanges, July 2023**



**Figure-4: Volume of Short-term Transactions of Electricity and DSM Volume, July 2023 (Day-wise)**

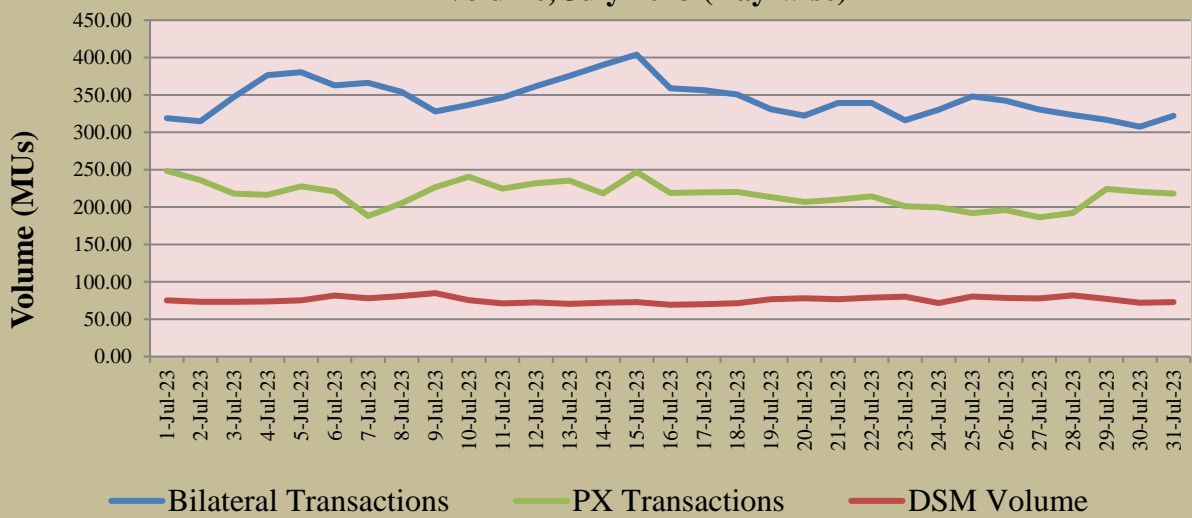
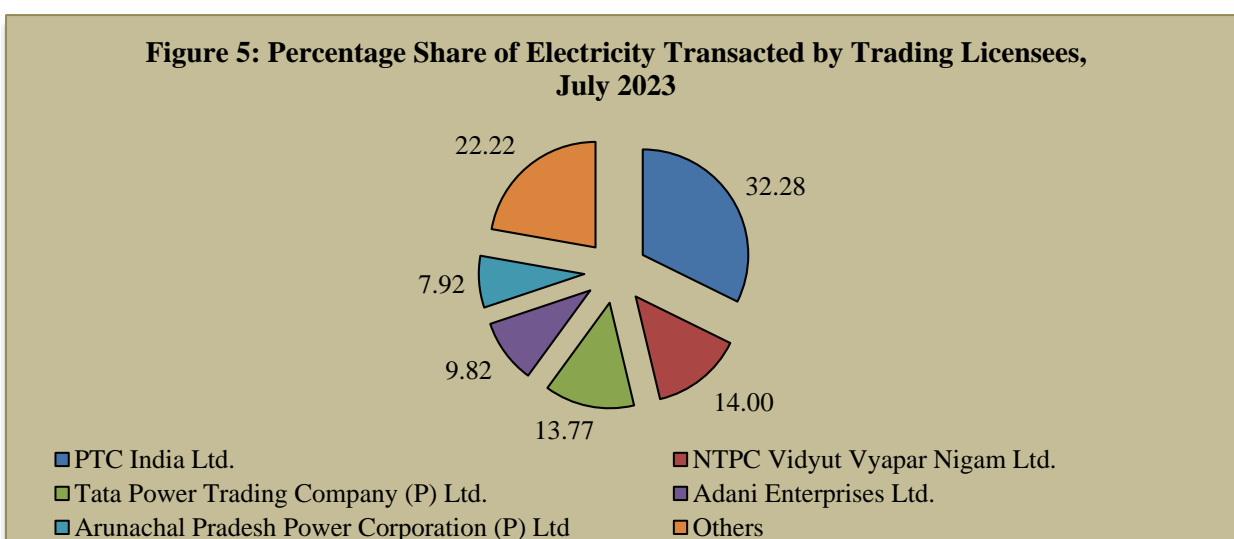


Table-2: PERCENTAGE SHARE OF ELECTRICITY TRANSACTED BY TRADING LICENSEES, JULY 2023			
Sr. No	Name of the Trading Licensee	% Share in total Volume traded by Trading Licensees	Herfindahl-Hirschman Index
1	PTC India Ltd.	32.28	0.1042
2	NTPC Vidyut Vyapar Nigam Ltd.	14.00	0.0196
3	Tata Power Trading Company (P) Ltd.	13.77	0.0190
4	Adani Enterprises Ltd.	9.82	0.0096
5	Arunachal Pradesh Power Corporation (P) Ltd	7.92	0.0063
6	Manikaran Power Ltd.	6.85	0.0047
7	GMR Energy Trading Ltd.	4.59	0.0021
8	Instinct Infra & Power Ltd.	1.87	0.0003
9	Kreate Energy (I) Pvt. Ltd.	1.63	0.0003
10	Statkraft Markets Pvt. Ltd.	1.51	0.0002
11	Greenko Energies Pvt Ltd	1.18	0.0001
12	JSW Power Trading Company Ltd	0.85	0.0001
13	NTPC Ltd.	0.63	0.0000
14	RPG Power Trading Company Ltd.	0.59	0.0000
15	Ambitious Power Trading Company Ltd.	0.58	0.0000
16	Gita Power & Infrastructure Private Limited	0.54	0.0000
17	Kundan International Pvt. Ltd.	0.38	0.0000
18	Abja Power Private Limited	0.27	0.0000
19	Saranyu Power Trading Private Limited	0.23	0.0000
20	NLC India Ltd.	0.14	0.0000
21	Instant Venture Pvt. Ltd.	0.11	0.0000
22	Ideal Energy Solution Pvt. Ltd.	0.08	0.0000
23	SJVN Ltd.	0.07	0.0000
24	Powerfull Energy Trading Pvt. Ltd.	0.04	0.0000
25	Customized Energy Solutions India (P) Ltd.	0.04	0.0000
26	Shree Cement Ltd.	0.04	0.0000
27	Phillip Commodities India (P) Ltd.	0.01	0.0000
28	Shubheksha Advisors Pvt. Ltd.	0.01	0.0000
29	Shell Energy Marketing and Trading India Pvt. Ltd.	0.006	0.0000
30	Altilium Energie Private Limited	0.002	0.0000
<b>TOTAL</b>		<b>100.00%</b>	<b>0.1667</b>
<b>Top 5 trading licensees</b>		<b>77.78%</b>	
Note 1: Volume of electricity transacted by the trading licensees includes bilateral transactions (inter-state & intra-state) and the transactions undertaken through power exchanges.			
Note 2: Volume of electricity transacted by Global Energy Ltd. is not included.			
Source: Information submitted by trading licensees			

**Figure 5: Percentage Share of Electricity Transacted by Trading Licensees, July 2023**



<b>Table-3: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS, JULY 2023</b>		
Sr.No	Item	Sale Price of Traders (₹/kWh)
1	Minimum	2.70
2	Maximum	11.05
3	Weighted Average	6.85

Source: Information submitted by trading licensees

<b>Table-4: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS (TIME-WISE), JULY 2023</b>		
Sr.No	Period of Trade	Sale Price of Traders (₹/kWh)
1	RTC	6.88
2	PEAK	-
3	OFF PEAK	6.62

Source: Information submitted by trading licensees

<b>Table-5: PRICE OF ELECTRICITY TRANSACTED IN DAY AHEAD MARKET THROUGH POWER EXCHANGES, JULY 2023</b>				
Sr.No	ACP	Price in IEX (₹/kWh)	Price in PXIL (₹/kWh)	Price in HPX (₹/kWh)
1	Minimum	1.00	-	-
2	Maximum	10.00	-	-
3	Weighted Average	4.47	-	-

Source: IEX, PXIL and HPX

<b>Table-6: PRICE OF ELECTRICITY TRANSACTED IN GREEN DAY AHEAD MARKET THROUGH POWER EXCHANGES, JULY 2023</b>				
Sr.No	ACP	Price in IEX (₹/kWh)	Price in PXIL (₹/kWh)	Price in HPX (₹/kWh)
1	Minimum	1.83	-	-
2	Maximum	10.00	-	-
3	Weighted Average	4.31	-	-

Source: IEX, PXIL and HPX

<b>Table-7: PRICE OF ELECTRICITY TRANSACTED IN HIGH PRICE DAY AHEAD MARKET THROUGH POWER EXCHANGES, JULY 2023</b>				
Sr.No	ACP	Price in IEX (₹/kWh)	Price in PXIL (₹/kWh)	Price in HPX (₹/kWh)
1	Minimum	10.05	-	-
2	Maximum	20.00	-	-
3	Weighted Average	10.91	-	-

Source: IEX, PXIL and HPX

<b>Table-8: PRICE OF ELECTRICITY TRANSACTED IN REAL TIME MARKET THROUGH POWER EXCHANGES, JULY 2023</b>				
Sr.No	ACP	Price in IEX (₹/kWh)	Price in PXIL (₹/kWh)	Price in HPX (₹/kWh)
1	Minimum	0.49	-	-
2	Maximum	10.00	-	-
3	Weighted Average	4.55	-	-

Source: IEX, PXIL and HPX

<b>Table-9: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF IEX, JULY 2023</b>			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MU)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	13.47	9.45
2	Day Ahead Contingency Contracts	734.64	5.51
3	Daily Contracts	69.60	4.36
4	Weekly Contracts	75.60	4.40
5	Any Day Single Sided Contracts	142.40	5.10
	<b>Total</b>	<b>1035.72</b>	<b>5.35</b>

Source: IEX

<b>Table-10: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF PXIL, JULY 2023</b>			
<b>Sr.No</b>	<b>Term ahead contracts</b>	<b>Actual Scheduled Volume (MU)</b>	<b>Weighted Average Price (₹/kWh)</b>
1	Intra-Day Contracts	5.12	9.77
2	Day Ahead Contingency Contracts	368.25	5.71
3	Any Day Single Sided Contracts	20.40	4.45
	<b>Total</b>	<b>393.78</b>	<b>5.70</b>

Source: PXIL

<b>Table-11: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF HPX, JULY 2023</b>			
<b>Sr.No</b>	<b>Term ahead contracts</b>	<b>Actual Scheduled Volume (MU)</b>	<b>Weighted Average Price (₹/kWh)</b>
1	Intra-Day Contracts	4.75	9.26
2	Day Ahead Contingency Contracts	634.27	5.47
3	Any Day Single Sided Contracts	154.02	5.82
	<b>Total</b>	<b>793.03</b>	<b>5.56</b>

Source: HPX

<b>Table-12: VOLUME AND PRICE OF ELECTRICITY IN GREEN TERM AHEAD MARKET OF IEX, JULY 2023</b>			
<b>Sr. No</b>	<b>Green Term ahead contracts</b>	<b>Actual Scheduled Volume (MU)</b>	<b>Weighted Average Price (₹/kWh)</b>
1	Day Ahead Contingency Contracts	57.77	4.61
2	Daily Contracts	0.96	4.86
3	Monthly Contracts	3.72	6.80
	<b>Total</b>	<b>62.46</b>	<b>4.74</b>

Source: IEX

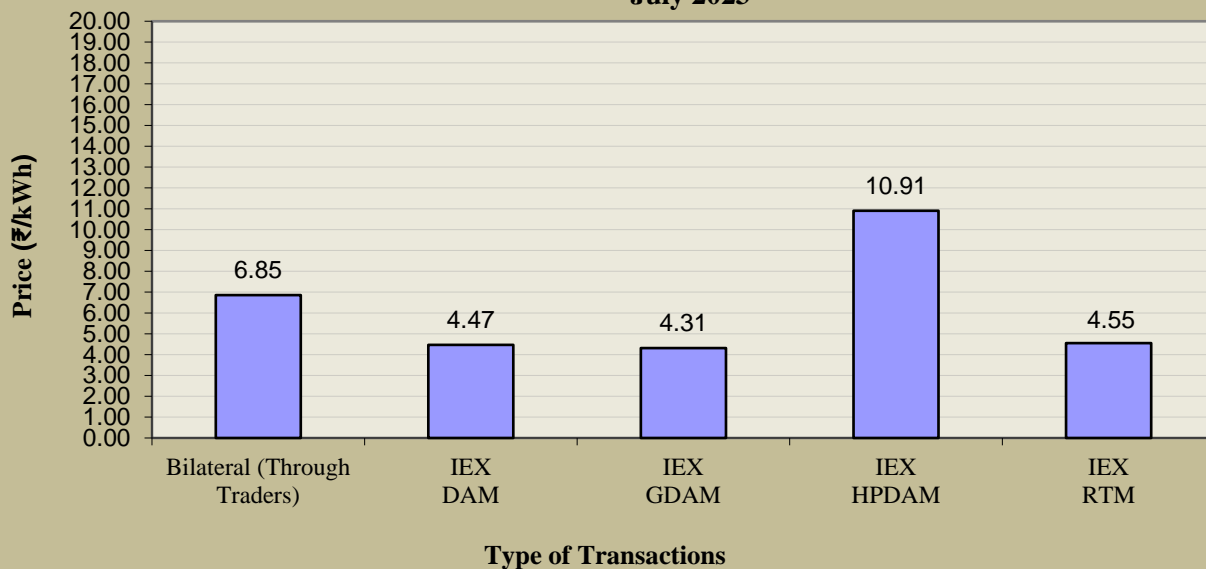
<b>Table-13: VOLUME AND PRICE OF ELECTRICITY IN GREEN TERM AHEAD MARKET OF PXIL, JULY 2023</b>			
<b>Sr. No</b>	<b>Green Term ahead contracts</b>	<b>Actual Scheduled Volume (MU)</b>	<b>Weighted Average Price (₹/kWh)</b>
1	Day Ahead Contingency Contracts	14.86	4.62
	<b>Total</b>	<b>14.86</b>	<b>4.62</b>

Source: PXIL

<b>Table-14: VOLUME AND PRICE OF ELECTRICITY IN GREEN TERM AHEAD MARKET OF HPX, JULY 2023</b>			
<b>Sr. No</b>	<b>Green Term ahead contracts</b>	<b>Actual Scheduled Volume (MU)</b>	<b>Weighted Average Price (₹/kWh)</b>
1	Day Ahead Contingency Contracts	74.63	4.81
2	Any Day Single Sided Contracts	1.25	5.99
	<b>Total</b>	<b>75.89</b>	<b>4.83</b>

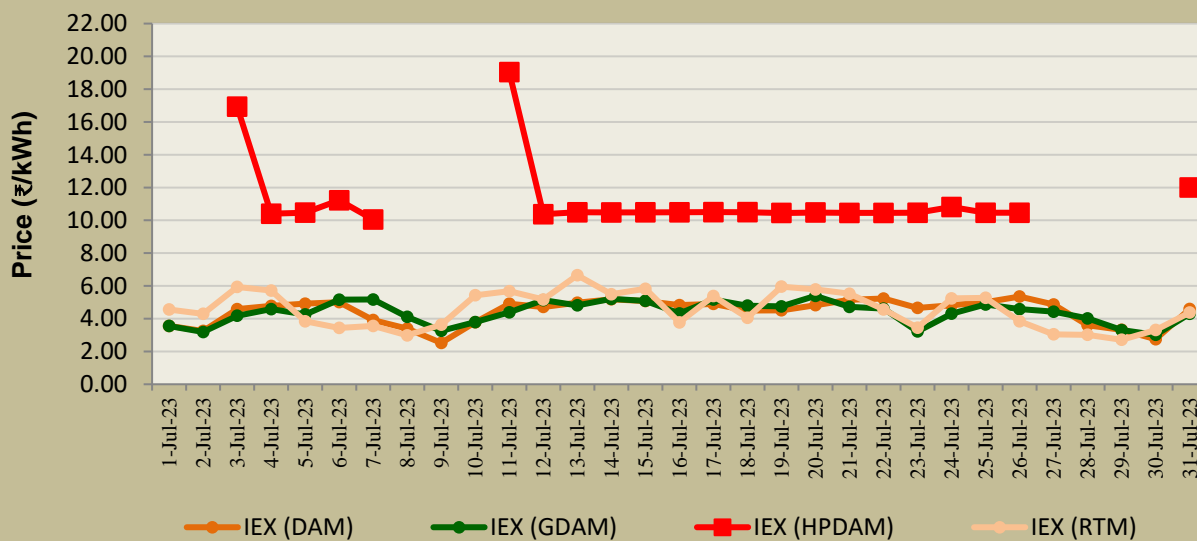
Source: HPX

**Figure-6: Weighted Average Price of Short-term Transactions of Electricity, July 2023**



*Note: No electricity was transacted in DAM, G-DAM & RTM of PXIL and in DAM, G-DAM & RTM of HPX during July 2023*

**Figure-7: Weighted Average Price of Short-term Transactions of Electricity, July 2023 (Day-wise)**



*Note: No electricity was transacted in DAM, G-DAM & RTM of PXIL and in DAM, G-DAM & RTM of HPX during July 2023*

<b>Table-15: VOLUME OF ELECTRICITY SOLD THROUGH BILATERAL, JULY 2023</b>		
<b>Name of the Entity</b>	<b>Volume of Sale (MUs)</b>	<b>% of Volume</b>
KARNATAKA	954.69	8.92
HIMACHAL PRADESH	772.71	7.22
MP	682.96	6.38
TEESTA HEP	571.38	5.34
ANDHRA PRADESH	533.59	4.99
ESSAR POWER	433.66	4.05
JINDAL STAGE-II	422.21	3.95
RAJASTHAN	413.30	3.86
ARTPP	369.16	3.45
TAMIL NADU	341.37	3.19
SIMHAPURI	338.25	3.16
JINDAL POWER	336.61	3.15
JAYPEE NIGRIE	246.13	2.30
NEEPCO STATIONS	234.68	2.19
MAHARASHTRA	210.61	1.97
J & K	193.85	1.81
RKM POWER	190.10	1.78
RPREL	186.82	1.75
ADHUNIK POWER LTD	184.97	1.73
NTPC STATIONS-SR	175.66	1.64
DB POWER	175.64	1.64
KERALA	175.52	1.64
AHEJ4L_SOLAR	158.57	1.48
UTTARAKHAND	154.80	1.45
DVC	143.55	1.34
SKS POWER	142.04	1.33
JITPL	140.07	1.31
MEGHALAYA	134.24	1.25
NTPC STATIONS-NR	104.94	0.98
AHEJ4L_WIND	92.68	0.87
TELANGANA	85.40	0.80
KOLYAT_SLR	81.01	0.76
JHABUA POWER_MP	77.34	0.72
GUJARAT	75.39	0.70
DAGACHU	69.51	0.65
ODISHA	63.84	0.60
NLC	62.94	0.59
WEST BENGAL	58.18	0.54
GMR KAMALANGA	56.52	0.53
ABC_BHDL2	54.77	0.51
AVAADASN_SLR	54.45	0.51
DIKCHU HEP	50.28	0.47
ARUNACHAL PRADESH	48.56	0.45
THARI_SLR	45.90	0.43
ACME_HEERGARH	44.14	0.41
AD HYDRO	43.09	0.40
SINGOLI BHATWARI HEP	43.09	0.40
GOA	40.71	0.38
DHARIWAL POWER	38.35	0.36
TATA_GREEN	37.74	0.35
ACBIL	37.44	0.35
SIKKIM	29.85	0.28
TEHRI	22.62	0.21
UTTAR PRADESH	21.72	0.20
SORANG HEP	19.91	0.19



DELHI	19.21	0.18
SEMBCORP	17.46	0.16
OSTRO Hiriyur	15.62	0.15
SB_SLR	15.45	0.14
CONTINNUM PT	15.41	0.14
ADANI_WIND	14.07	0.13
SAINJ HEP	13.70	0.13
MANIPUR	13.30	0.12
RENEW_SR_SLR	12.72	0.12
TRN ENERGY	11.82	0.11
SHREE CEMENT	10.99	0.10
KARCHAM WANGTOO	10.75	0.10
TASHIDENG HEP	8.56	0.08
MARUTI COAL	7.56	0.07
REGL	7.52	0.07
LANKO_AMK	6.99	0.07
PUNJAB	5.76	0.05
JORETHANG	5.09	0.05
REENERGY5_WIND	4.24	0.04
BIHAR	1.85	0.02
NTPC STATIONS-WR	1.20	0.01
HARYANA	0.70	0.01
INOX_BHUJ	0.61	0.01
NAGALAND	0.32	0.003
<b>Total</b>	<b>10698.37</b>	<b>100.00</b>
<b>Volume Sold by top 5 Regional Entities</b>	<b>3515.33</b>	<b>32.86</b>

<b>Table-16: VOLUME OF ELECTRICITY PURCHASED THROUGH BILATERAL, JULY 2023</b>		
<b>Name of the Entity</b>	<b>Volume of Purchase (MUs)</b>	<b>% of Volume</b>
PUNJAB	2131.42	19.92
HARYANA	1689.62	15.79
UTTAR PRADESH	1270.68	11.88
DELHI	1150.95	10.76
MAHARASHTRA	758.90	7.09
TELANGANA	535.31	5.00
TAMIL NADU	411.93	3.85
ODISHA	303.25	2.83
WEST BENGAL	301.15	2.81
AMPS Hazira	288.79	2.70
ANDHRA PRADESH	260.85	2.44
JHARKHAND	225.41	2.11
GUJARAT	209.97	1.96
RAJASTHAN	208.53	1.95
ASSAM	179.42	1.68
MP	125.62	1.17
DD&DNH	119.93	1.12
UTTARAKHAND	113.74	1.06
KERALA	92.16	0.86
CHHATTISGARH	76.47	0.71
GOA	69.41	0.65
BALCO	36.55	0.34
BIHAR	32.18	0.30
KARNATAKA	25.11	0.23
SIKKIM	24.88	0.23
DVC	20.40	0.19
PONDICHERRY	18.26	0.17
HIMACHAL PRADESH	13.70	0.13
J & K	2.76	0.03
MEGHALAYA	1.05	0.01
<b>TOTAL</b>	<b>10698.37</b>	<b>100.00</b>
<b>Volume Purchased by top 5 Regional Entities</b>	<b>7001.56</b>	<b>65.45</b>

**Table-17: VOLUME OF ELECTRICITY SOLD IN DAY AHEAD MARKET THROUGH POWER EXCHANGES, JULY 2023**

<b>Name of the Entity</b>	<b>Volume of Sale (MUs)</b>	<b>% of Volume</b>
UTTAR PRADESH	366.35	9.24
HARYANA	269.33	6.79
NEPAL(NVVN)	251.12	6.33
HIMACHAL PRADESH	232.12	5.85
TEESTA HEP	185.14	4.67
JAYPEE NIGRIE	181.57	4.58
CHHATTISGARH	174.65	4.40
BIHAR	165.55	4.17
DELHI	150.40	3.79
MP	143.77	3.62
KARNATAKA	140.66	3.55
JITPL	126.42	3.19
MB POWER	89.52	2.26
ARTPP	86.23	2.17
ESSAR POWER	85.96	2.17
KARCHAM WANGTOO	84.61	2.13
RAJASTHAN	80.55	2.03
MAHARASHTRA	75.33	1.90
ACBIL	66.85	1.69
DB POWER	64.02	1.61
AD HYDRO	63.51	1.60
SEMBCORP	63.48	1.60
TAMIL NADU	47.06	1.19
GUJARAT	45.78	1.15
JINDAL POWER	45.19	1.14
JINDAL STAGE-II	44.52	1.12
PUNJAB	43.04	1.09
ANDHRA PRADESH	42.77	1.08
DCPP	41.46	1.05
CHANDIGARH	38.04	0.96
TELANGANA	35.83	0.90
ODISHA	34.20	0.86
DIKCHU HEP	27.04	0.68
RKM POWER	27.00	0.68
RENEW_SR_SLR	23.78	0.60
ADANI_WIND	23.05	0.58
ARUNACHAL PRADESH	22.66	0.57
PONDICHERRY	22.53	0.57
SKS POWER	18.81	0.47
UTTARAKHAND	18.15	0.46
SAINJ HEP	17.39	0.44
DVC	14.11	0.36
OSTRO Hiriyur	12.55	0.32
SINGOLI BHATWARI HEP	12.19	0.31
MARUTI COAL	12.13	0.31
JHARKHAND	12.12	0.31
CHUZACHEN HEP	11.98	0.30
GOA	11.69	0.29
ASEJTL_SLR	10.46	0.26
ASSAM	10.02	0.25
J & K	9.41	0.24
ONGC PALATANA	8.65	0.22
SIKKIM	8.15	0.21
EMCO	7.39	0.19

JHABUA POWER_MP	6.71	0.17
MEGHALAYA	6.35	0.16
ADHUNIK POWER LTD	6.06	0.15
SHREE CEMENT	5.25	0.13
LANCO BUDHIL	5.13	0.13
NTPC STATIONS-SR	5.00	0.13
MIZORAM	4.24	0.11
NAGALAND	4.24	0.11
KERALA	2.72	0.07
DHARIWAL POWER	2.58	0.07
IL&FS	2.30	0.06
WEST BENGAL	2.30	0.06
MANIPUR	1.59	0.04
SORANG HEP	1.24	0.03
SIMHAPURI	1.09	0.03
NTPC STATIONS-NER	1.06	0.03
NEEPCO STATIONS	1.05	0.03
SB_SLR	0.41	0.01
GMR KAMALANGA	0.32	0.01
RENERGY5_WIND	0.24	0.01
INOX_BHUJ	0.02	0.0005
<b>Total</b>	<b>3966.20</b>	<b>100.00</b>
<b>Volume sold by top 5 Regional Entities</b>	<b>1304.06</b>	<b>32.88</b>

<b>Table-18: VOLUME OF ELECTRICITY PURCHASED IN DAY AHEAD MARKET THROUGH POWER EXCHANGES, JULY 2023</b>		
<b>Name of the Entity</b>	<b>Volume of Purchase (MUs)</b>	<b>% of Volume</b>
WEST BENGAL	1044.63	26.34
GUJARAT	483.13	12.18
TELANGANA	345.95	8.72
RAJASTHAN	290.09	7.31
UTTAR PRADESH	265.15	6.69
MAHARASHTRA	241.36	6.09
ANDHRA PRADESH	231.52	5.84
TAMIL NADU	174.77	4.41
KERALA	169.58	4.28
DD&DNH	146.61	3.70
PUNJAB	134.47	3.39
ODISHA	61.52	1.55
MP	58.51	1.48
DVC	43.48	1.10
UTTARAKHAND	38.09	0.96
ASSAM	36.96	0.93
KARNATAKA	34.76	0.88
JHARKHAND	28.41	0.72
HARYANA	20.28	0.51
GOA	18.29	0.46
NCR ALLAHABAD	16.96	0.43
BIHAR	15.64	0.39
MEGHALAYA	13.27	0.33
AMPS Hazira	12.92	0.33
DELHI	11.96	0.30
HIMACHAL PRADESH	11.64	0.29
CHHATTISGARH	6.64	0.17
NEP	6.62	0.17
TRIPURA	1.46	0.04
BALCO	1.28	0.03
CHANDIGARH	0.23	0.01
<b>TOTAL</b>	<b>3966.20</b>	<b>100.00</b>
<b>Volume purchased by top 5 Regional Entities</b>	<b>2428.95</b>	<b>61.24</b>

<b>Table-19: VOLUME OF ELECTRICITY SOLD IN GREEN DAY AHEAD MARKET THROUGH POWER EXCHANGES, JULY 2023</b>		
<b>Name of the Entity</b>	<b>Volume of Sale (MUs)</b>	<b>% of Volume</b>
ANDHRA PRADESH	42.68	20.12
MAHARASHTRA	22.59	10.65
RENEW_SR_SLR	21.60	10.18
KARNATAKA	19.36	9.13
J & K	18.24	8.60
OSTRO Hiriyur	17.89	8.43
SINGOLI BHATWARI HEP	16.37	7.72
RENERGY5_WIND	9.19	4.33
RAJASTHAN	7.12	3.35
SB_SLR	6.83	3.22
CONTINNUM PT	5.98	2.82
ADANI_WIND	5.73	2.70
SIKKIM	4.49	2.11
HIMACHAL PRADESH	4.33	2.04
NTPC STATIONS-SR	4.33	2.04
UTTAR PRADESH	2.80	1.32
MP	1.28	0.60
INOX_BHUJ	1.22	0.57
TELANGANA	0.09	0.04
WEST BENGAL	0.03	0.01
<b>Total</b>	<b>212.14</b>	<b>100.00</b>
<b>Volume sold by top 5 Regional Entities</b>	<b>124.48</b>	<b>58.68</b>

<b>Table-20: VOLUME OF ELECTRICITY PURCHASED IN GREEN DAY AHEAD MARKET THROUGH POWER EXCHANGES, JULY 2023</b>		
<b>Name of the Entity</b>	<b>Volume of Purchase (MUs)</b>	<b>% of Volume</b>
DVC	57.79	27.24
MAHARASHTRA	31.21	14.71
TAMIL NADU	22.34	10.53
UTTAR PRADESH	11.43	5.39
GUJARAT	10.60	5.00
KARNATAKA	10.49	4.94
NCR ALLAHABAD	9.72	4.58
KERALA	9.21	4.34
DELHI	9.16	4.32
BALCO	7.43	3.50
PUNJAB	7.15	3.37
AMPS Hazira	6.31	2.97
ANDHRA PRADESH	5.61	2.65
HARYANA	3.61	1.70
MP	2.98	1.41
TELANGANA	2.11	0.99
JHARKHAND	1.87	0.88
ODISHA	1.53	0.72
DD&DNH	0.87	0.41
ASSAM	0.53	0.25
MEGHALAYA	0.20	0.10
<b>TOTAL</b>	<b>212.14</b>	<b>100.00</b>
<b>Volume purchased by top 5 Regional Entities</b>	<b>133.37</b>	<b>62.87</b>

**Table-21: VOLUME OF ELECTRICITY SOLD IN HIGH PRICE DAY AHEAD MARKET THROUGH POWER EXCHANGES, JULY 2023**

<b>Name of the Entity</b>	<b>Volume of Sale (MUs)</b>	<b>% of Volume</b>
GUJARAT	0.16	53.54
TAMIL NADU	0.14	46.46
<b>Total</b>	<b>0.30</b>	<b>100.00</b>
<b>Volume sold by top 5 Regional Entities</b>	<b>0.30</b>	<b>100.00</b>

**Table-22: VOLUME OF ELECTRICITY PURCHASED IN HIGH PRICE DAY AHEAD MARKET THROUGH POWER EXCHANGES, JULY 2023**

<b>Name of the Entity</b>	<b>Volume of Purchase (MUs)</b>	<b>% of Volume</b>
MEGHALAYA	0.30	100.00
<b>Total</b>	<b>0.30</b>	<b>100.00</b>
<b>Volume purchased by top 5 Regional Entities</b>	<b>0.30</b>	<b>100.00</b>

**Table-23: VOLUME OF ELECTRICITY SOLD IN REAL TIME MARKET THROUGH POWER EXCHANGES, JULY 2023**

Name of the Entity	Volume of Sale (MUs)	% of Volume
MP	404.36	15.92
J & K	159.57	6.28
BIHAR	153.64	6.05
PUNJAB	131.31	5.17
NTPC STATIONS-ER	128.45	5.06
HIMACHAL PRADESH	117.82	4.64
TAMIL NADU	107.40	4.23
ODISHA	104.03	4.10
HARYANA	100.61	3.96
DELHI	92.28	3.63
RAJASTHAN	78.75	3.10
TELANGANA	75.03	2.95
KARNATAKA	66.81	2.63
CHHATTISGARH	66.27	2.61
ANDHRA PRADESH	57.49	2.26
MAHARASHTRA	56.70	2.23
NTPC STATIONS-NR	49.11	1.93
UTTAR PRADESH	42.63	1.68
UTTARAKHAND	40.64	1.60
JHARKHAND	40.47	1.59
NTPC STATIONS-WR	31.40	1.24
ASSAM	30.74	1.21
SASAN UMPP	29.05	1.14
KARCHAM WANGTOO	26.36	1.04
MB POWER	24.23	0.95
ESSAR POWER	23.29	0.92
WEST BENGAL	21.57	0.85
GUJARAT	18.48	0.73
SEMBCORP	15.42	0.61
MANIPUR	14.11	0.56
NPGC	13.84	0.54
ARTPP	13.43	0.53
RKM POWER	13.38	0.53
ONGC PALATANA	12.79	0.50
NTPC STATIONS-SR	9.98	0.39
NLC	9.22	0.36
ACBIL	9.14	0.36
AD HYDRO	8.83	0.35
SIKKIM	8.68	0.34
PONDICHERRY	8.39	0.33
TRN ENERGY	8.28	0.33
DB POWER	8.00	0.31
NEEPCO STATIONS	7.67	0.30
JINDAL STAGE-II	7.44	0.29
JHABUA POWER_MP	6.46	0.25
ADHUNIK POWER LTD	6.35	0.25
JINDAL POWER	6.19	0.24
TASHIDENG HEP	4.93	0.19
OSTRO Hiriyur	4.80	0.19
NTPC STATIONS-NER	4.80	0.19
SINGOLI BHATWARI HEP	4.39	0.17
DD&DNH	4.19	0.17
SIMHAPURI	4.14	0.16
DCPP	3.90	0.15



KERALA	3.89	0.15
MARUTI COAL	3.64	0.14
TRIPURA	3.47	0.14
JORETHANG	3.32	0.13
DVC	3.31	0.13
ARUNACHAL PRADESH	3.14	0.12
EMCO	2.93	0.12
SHREE CEMENT	2.75	0.11
SKS POWER	2.67	0.11
JAYPEE NIGRIE	2.60	0.10
CHANDIGARH	2.43	0.10
MTPS	2.39	0.09
SAINJ HEP	2.13	0.08
NAGALAND	1.69	0.07
RENEW_SR_SLR	0.82	0.03
SORANG HEP	0.41	0.02
GOA	0.39	0.02
IL&FS	0.35	0.01
LANCO BUDHIL	0.31	0.01
DIKCHU HEP	0.21	0.01
SB_SLR	0.09	0.003
GMR KAMALANGA	0.07	0.003
MEGHALAYA	0.07	0.003
JITPL	0.06	0.002
INOX_BHUJ	0.04	0.002
TEESTA HEP	0.03	0.001
CONTINNUM PT	0.001	0.00002
<b>Total</b>	<b>2540.45</b>	<b>100.00</b>
<b>Volume sold by top 5 Regional Entities</b>	<b>977.33</b>	<b>38.47</b>

**Table-24: VOLUME OF ELECTRICITY PURCHASED IN REAL TIME MARKET THROUGH POWER EXCHANGES, JULY 2023**

<b>Name of the Entity</b>	<b>Volume of Purchase (MUs)</b>	<b>% of Volume</b>
TELANGANA	501.74	19.75
WEST BENGAL	278.18	10.95
RAJASTHAN	236.79	9.32
ANDHRA PRADESH	195.90	7.71
KERALA	156.24	6.15
UTTAR PRADESH	134.60	5.30
MAHARASHTRA	133.49	5.25
PUNJAB	112.91	4.44
ODISHA	83.09	3.27
UTTARAKHAND	81.18	3.20
GUJARAT	76.42	3.01
TAMIL NADU	69.18	2.72
DVC	57.34	2.26
DELHI	56.79	2.24
ASSAM	47.45	1.87
HIMACHAL PRADESH	39.77	1.57
MP	37.21	1.46
KARNATAKA	28.86	1.14
BIHAR	28.30	1.11
JHARKHAND	23.76	0.94
DD&DNH	23.18	0.91
J & K	20.84	0.82
AMPS Hazira	18.67	0.73
HARYANA	18.52	0.73
CHHATTISGARH	18.45	0.73
BALCO	12.64	0.50
TRIPURA	11.36	0.45
MEGHALAYA	10.58	0.42
NCR ALLAHABAD	4.79	0.19
MANIPUR	3.41	0.13
SAINJ HEP	2.60	0.10
KARCHAM WANGTOO	2.54	0.10
SIMHAPURI	2.26	0.09
GOA	2.18	0.09
SIKKIM	1.93	0.08
NTPC STATIONS-WR	1.44	0.06
DCPP	1.44	0.06
ARUNACHAL PRADESH	1.36	0.05
RGPL_IR	1.07	0.04
ESSAR POWER	0.60	0.02
JINDAL STAGE-II	0.39	0.02
MARUTI COAL	0.28	0.01
SKS POWER	0.27	0.01
CHANDIGARH	0.16	0.01
SINGOLI BHATWARI HEP	0.15	0.01
PONDICHERRY	0.10	0.004
ACBIL	0.01	0.001
<b>TOTAL</b>	<b>2540.45</b>	<b>100.00</b>
<b>Volume purchased by top 5 Regional Entities</b>	<b>1368.84</b>	<b>53.88</b>

<b>Table-25: TOTAL VOLUME OF NET SHORT-TERM TRANSACTIONS OF ELECTRICITY (REGIONAL ENTITY-WISE), JULY 2023</b>		
<b>S. No.</b>	<b>Name of the Entity</b>	<b>Total volume of net short-term transactions of electricity*</b>
1	PUNJAB	2205.84
2	WEST BENGAL	1541.88
3	HARYANA	1361.39
4	UTTAR PRADESH	1248.36
5	TELANGANA	1188.74
6	DELHI	966.97
7	MAHARASHTRA	799.75
8	GUJARAT	640.30
9	AMPS Hazira	326.69
10	DD&DNH	286.40
11	ODISHA	247.32
12	KERALA	245.06
13	JHARKHAND	226.87
14	ASSAM	223.59
15	TAMIL NADU	182.25
16	RAJASTHAN	155.69
17	BALCO	57.90
18	GOA	37.09
19	NCR ALLAHABAD	31.47
20	UTTARAKHAND	19.43
21	DVC	18.06
22	ANDHRA PRADESH	17.35
23	TRIPURA	9.35
24	NEP	6.62
25	RGPPL_IR	1.07
26	INOX_BHUI	-1.89
27	MTPS	-2.39
28	IL&FS	-2.65
29	MIZORAM	-4.24
30	LANCO BUDHIL	-5.44
31	NTPC STATIONS-NER	-5.86
32	NAGALAND	-6.25
33	LANKO_AMK	-6.99
34	REGL	-7.52
35	JORETHANG	-8.41
36	EMCO	-10.32
37	ASEJTL_SLR	-10.46
38	CHUZACHEN HEP	-11.98
39	PONDICHERRY	-12.57
40	TASHIDENG HEP	-13.49
41	RENERGY5_WIND	-13.67
42	NPGC	-13.84
43	SHREE CEMENT	-18.99
44	TRN ENERGY	-20.10
45	CONTINNUM PT	-21.40
46	ONGC PALATANA	-21.44
47	SORANG HEP	-21.55
48	TEHRI	-22.62
49	SB_SLR	-22.78
50	MARUTI COAL	-23.06
51	SIKKIM	-24.35
52	MANIPUR	-25.59
53	SASAN UMPP	-29.05
54	SAINJ HEP	-30.61
55	NTPC STATIONS-WR	-31.15
56	TATA_GREEN	-37.74
57	CHANDIGARH	-40.08
58	DHARIWAL POWER	-40.93
59	ADANI_WIND	-42.84
60	DCPP	-43.92
61	ACME_HEERGARH	-44.14
62	THARI_SLR	-45.90

63	OSTRO Hiriyur	-50.86
64	AVAADASN_SLR	-54.45
65	ABC_BHDL2	-54.77
66	GMR KAMALANGA	-56.92
67	RENEW_SR_SLR	-58.92
68	DAGACHU	-69.51
69	NLC	-72.16
70	ARUNACHAL PRADESH	-73.01
71	SINGOLI BHATWARI HEP	-75.88
72	DIKCHU HEP	-77.52
73	KOLYAT_SLR	-81.01
74	JHABUA POWER_MP	-90.51
75	AHEJ4L_WIND	-92.68
76	SEMBCORP	-96.36
77	ACBIL	-113.42
78	MB POWER	-113.75
79	MEGHALAYA	-115.26
80	AD HYDRO	-115.43
81	KARCHAM WANGTOO	-119.17
82	NTPC STATIONS-ER	-128.45
83	CHHATTISGARH	-139.36
84	NTPC STATIONS-NR	-154.05
85	AHEJ4L_SOLAR	-158.57
86	SKS POWER	-163.25
87	RPREL	-186.82
88	NTPC STATIONS-SR	-194.97
89	ADHUNIK POWER LTD	-197.37
90	RKM POWER	-230.48
91	NEEPCO STATIONS	-243.40
92	BIHAR	-244.92
93	DB POWER	-247.66
94	NEPAL(NVVN)	-251.12
95	JITPL	-266.55
96	SIMHAPURI	-341.22
97	J & K	-357.46
98	JINDAL POWER	-387.99
99	JAYPEE NIGRIE	-430.30
100	ARTPP	-468.82
101	JINDAL STAGE-II	-473.78
102	ESSAR POWER	-542.31
103	TEESTA HEP	-756.55
104	MP	-1008.05
105	HIMACHAL PRADESH	-1061.87
106	KARNATAKA	-1082.30
* Total volume of net short-term transactions of electricity includes net of transactions of electricity through bilateral and power exchange		
(-) indicates sale and (+) indicates purchase		

**Table-26: DETAILS OF CONGESTION IN POWER EXCHANGES, JULY 2023**

	Details of Congestion	Day Ahead Market			Green Day Ahead Market			High Price Day Ahead Market	Real Time Market		
		IEX	PXIL	HPX	IEX	PXIL	HPX	IEX	IEX	PXIL	HPX
1	Unconstrained Cleared Volume (MUs)	3966.20	0.00	0.00	212.14	0.00	0.00	0.30	2541.22	0.00	0.00
2	Actual Cleared Volume and hence scheduled (MUs)	3966.20	0.00	0.00	212.14	0.00	0.00	0.30	2540.45	0.00	0.00
3	Volume of electricity that could not be cleared and hence not scheduled because of congestion (MUs) *	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.78	0.00	0.00
4	Volume of electricity that could not be cleared and hence not scheduled because of reasons other than congestion (MUs)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	Volume of electricity that could not be cleared as % to Unconstrained Cleared Volume	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.03%	0.00%	0.00%
6	Percentage of the time congestion occurred during the month (Number of hours congestion occurred/ Total number of hours in the month)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.20%	0.00%	0.00%
7	Congestion occurrence (%) time block wise										
	0.00 - 6.00 hours	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	6.00 - 12.00 hours	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	12.00 - 18.00 hours	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	18.00 - 24.00 hours	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%

\* This power would have been scheduled had there been no congestion

Source: IEX, PXIL, HPX & NLDC

**Table-27: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY IN INDIA (DAY-WISE) (MUs), JULY 2023**

Date	Bilateral		Day Ahead Market <sup>#</sup>			Green Day Ahead Market <sup>#</sup>			High Price DAM <sup>#</sup>	Real Time Market <sup>#</sup>			Total Electricity Generation (MU) *
	Through Traders and PXs**	Direct	IEX	PXIL	HPX	IEX	PXIL	HPX	IEX	IEX	PXIL	HPX	
1-Jul-23	195.90	123.11	135.72	0.00	0.00	5.42	0.00	0.00	0.00	107.28	0.00	0.00	3937.28
2-Jul-23	186.56	128.20	137.71	0.00	0.00	6.26	0.00	0.00	0.00	92.07	0.00	0.00	3936.07
3-Jul-23	205.28	141.98	133.11	0.00	0.00	6.08	0.00	0.00	0.01	78.85	0.00	0.00	4199.99
4-Jul-23	220.87	155.66	130.85	0.00	0.00	6.41	0.00	0.00	0.01	79.11	0.00	0.00	4255.91
5-Jul-23	226.13	154.24	127.21	0.00	0.00	10.84	0.00	0.00	0.01	89.74	0.00	0.00	4131.26
6-Jul-23	219.71	143.01	135.03	0.00	0.00	5.28	0.00	0.00	0.02	80.74	0.00	0.00	4027.07
7-Jul-23	226.30	139.97	113.27	0.00	0.00	5.97	0.00	0.00	0.00	68.88	0.00	0.00	4061.59
8-Jul-23	217.79	136.17	123.38	0.00	0.00	5.62	0.00	0.00	0.00	76.21	0.00	0.00	3878.63
9-Jul-23	197.06	130.96	106.13	0.00	0.00	7.72	0.00	0.00	0.00	112.79	0.00	0.00	3695.20
10-Jul-23	209.45	127.15	133.26	0.00	0.00	5.13	0.00	0.00	0.00	102.12	0.00	0.00	3955.18
11-Jul-23	213.12	133.45	128.81	0.00	0.00	4.62	0.00	0.00	0.01	91.22	0.00	0.00	4043.84
12-Jul-23	217.52	144.33	135.11	0.00	0.00	5.12	0.00	0.00	0.01	91.82	0.00	0.00	4141.32
13-Jul-23	225.24	150.13	144.30	0.00	0.00	4.62	0.00	0.00	0.02	86.53	0.00	0.00	4160.52
14-Jul-23	238.51	151.73	141.04	0.00	0.00	5.41	0.00	0.00	0.02	71.87	0.00	0.00	4170.90
15-Jul-23	254.60	149.39	150.08	0.00	0.00	5.90	0.00	0.00	0.03	91.07	0.00	0.00	4120.90
16-Jul-23	218.42	140.58	133.44	0.00	0.00	5.73	0.00	0.00	0.03	79.69	0.00	0.00	3987.44
17-Jul-23	222.84	133.54	138.48	0.00	0.00	5.00	0.00	0.00	0.03	76.24	0.00	0.00	4203.61
18-Jul-23	213.74	136.80	141.07	0.00	0.00	6.86	0.00	0.00	0.02	72.28	0.00	0.00	4156.05
19-Jul-23	200.83	130.04	132.14	0.00	0.00	9.50	0.00	0.00	0.01	71.60	0.00	0.00	4113.52
20-Jul-23	204.58	117.77	127.51	0.00	0.00	7.70	0.00	0.00	0.02	71.66	0.00	0.00	4194.44
21-Jul-23	214.70	124.50	128.78	0.00	0.00	9.49	0.00	0.00	0.01	71.56	0.00	0.00	4256.43
22-Jul-23	211.31	127.91	141.17	0.00	0.00	7.64	0.00	0.00	0.02	65.64	0.00	0.00	4118.72
23-Jul-23	188.54	127.66	126.12	0.00	0.00	7.38	0.00	0.00	0.00	67.72	0.00	0.00	3990.80
24-Jul-23	205.84	124.46	116.66	0.00	0.00	6.97	0.00	0.00	0.02	75.97	0.00	0.00	4223.96
25-Jul-23	219.16	128.96	120.70	0.00	0.00	5.23	0.00	0.00	0.01	66.03	0.00	0.00	4245.06
26-Jul-23	218.49	123.85	120.99	0.00	0.00	6.22	0.00	0.00	0.01	68.77	0.00	0.00	4094.90
27-Jul-23	206.63	123.95	114.66	0.00	0.00	6.81	0.00	0.00	0.00	64.86	0.00	0.00	4052.12
28-Jul-23	199.32	123.96	108.99	0.00	0.00	8.85	0.00	0.00	0.00	74.30	0.00	0.00	3918.55
29-Jul-23	192.77	124.06	107.31	0.00	0.00	11.73	0.00	0.00	0.00	105.21	0.00	0.00	3756.14
30-Jul-23	186.27	121.30	108.97	0.00	0.00	9.53	0.00	0.00	0.00	101.87	0.00	0.00	3811.21
31-Jul-23	199.61	122.45	124.20	0.00	0.00	7.10	0.00	0.00	0.00	86.75	0.00	0.00	4074.26
<b>Total</b>	<b>6557.12</b>	<b>4141.25</b>	<b>3966.20</b>	<b>0.00</b>	<b>0.00</b>	<b>212.14</b>	<b>0.00</b>	<b>0.00</b>	<b>0.30</b>	<b>2540.45</b>	<b>0.00</b>	<b>0.00</b>	<b>125912.87</b>

Source: NLDC

\* As available on CEA Website. Gross Electricity Generation excluding electricity generation from renewables and captive power plants.

\*\* The volume of bilateral through PXs represents the volume through term-ahead contracts.

# Scheduled volume of all the bid areas.

**Table-28(a): PRICE OF DAY AHEAD TRANSACTIONS OF ELECTRICITY (DAY-WISE) (₹/kWh), JULY 2023**

Market Segment	Day Ahead Market of IEX			Day Ahead Market of PXIL			Day Ahead Market of HPX			High Price Day Ahead Market of IEX		
Date	Minimum ACP	Maximum ACP	Weighted Average Price*	Minimum ACP	Maximum ACP	Weighted Average Price*	Minimum ACP	Maximum ACP	Weighted Average Price*	Minimum ACP	Maximum ACP	Weighted Average Price*
1-Jul-23	2.00	10.00	3.56	-	-	-	-	-	-	-	-	-
2-Jul-23	1.42	5.88	3.25	-	-	-	-	-	-	-	-	-
3-Jul-23	2.65	10.00	4.58	-	-	-	-	-	-	10.05	20.00	16.93
4-Jul-23	2.75	10.00	4.78	-	-	-	-	-	-	10.05	10.50	10.40
5-Jul-23	2.76	10.00	4.91	-	-	-	-	-	-	10.05	10.50	10.47
6-Jul-23	2.77	10.00	5.01	-	-	-	-	-	-	10.05	20.00	11.22
7-Jul-23	2.11	10.00	3.91	-	-	-	-	-	-	10.05	10.05	10.05
8-Jul-23	2.35	6.51	3.39	-	-	-	-	-	-	-	-	-
9-Jul-23	1.00	4.70	2.52	-	-	-	-	-	-	-	-	-
10-Jul-23	2.19	8.50	3.78	-	-	-	-	-	-	-	-	-
11-Jul-23	3.02	10.00	4.91	-	-	-	-	-	-	10.05	20.00	19.04
12-Jul-23	2.92	10.00	4.71	-	-	-	-	-	-	10.05	10.50	10.37
13-Jul-23	3.23	10.00	4.97	-	-	-	-	-	-	10.05	10.50	10.49
14-Jul-23	3.32	10.00	5.18	-	-	-	-	-	-	10.05	10.50	10.48
15-Jul-23	3.22	10.00	5.08	-	-	-	-	-	-	10.05	10.50	10.49
16-Jul-23	2.50	10.00	4.83	-	-	-	-	-	-	10.05	10.50	10.49
17-Jul-23	3.14	10.00	4.90	-	-	-	-	-	-	10.05	10.50	10.50
18-Jul-23	2.98	10.00	4.50	-	-	-	-	-	-	10.05	10.50	10.49
19-Jul-23	2.75	10.00	4.51	-	-	-	-	-	-	10.05	10.50	10.45
20-Jul-23	2.80	10.00	4.82	-	-	-	-	-	-	10.05	10.50	10.47
21-Jul-23	3.00	10.00	5.16	-	-	-	-	-	-	10.05	10.50	10.45
22-Jul-23	3.06	10.00	5.23	-	-	-	-	-	-	10.05	10.46	10.45
23-Jul-23	2.00	10.00	4.65	-	-	-	-	-	-	10.46	10.46	10.46
24-Jul-23	2.80	10.00	4.82	-	-	-	-	-	-	10.46	11.00	10.81
25-Jul-23	2.78	10.00	5.01	-	-	-	-	-	-	10.46	10.46	10.46
26-Jul-23	2.69	10.00	5.35	-	-	-	-	-	-	10.46	10.46	10.46
27-Jul-23	2.80	10.00	4.87	-	-	-	-	-	-	-	-	-
28-Jul-23	2.51	7.47	3.60	-	-	-	-	-	-	-	-	-
29-Jul-23	2.00	6.51	3.32	-	-	-	-	-	-	-	-	-
30-Jul-23	1.43	5.67	2.75	-	-	-	-	-	-	-	-	-
31-Jul-23	2.19	10.00	4.59	-	-	-	-	-	-	12.00	12.00	12.00
	<b>1.00<sup>#</sup></b>	<b>10.00<sup>#</sup></b>	<b>4.47</b>	-	-	-	-	-	-	<b>10.05<sup>#</sup></b>	<b>20.00<sup>#</sup></b>	<b>10.91</b>

Source: IEX, PXIL and HPX

\* Weighted average price computed based on Area Clearing Volume (ACV) and Area Clearing Price (ACP) for each hour of the day. Here, ACV and ACP represent the scheduled volume and weighted average price of all the bid areas of power exchanges.

# Maximum/Minimum in the month

**Table-28(b): PRICE OF GREEN DAY AHEAD TRANSACTIONS OF ELECTRICITY (DAY-WISE) (₹/kWh),  
JULY 2023**

Market Segment	Green Day Ahead Market of IEX			Green Day Ahead Market of PXIL			Green Day Ahead Market of HPX		
	Date	Minimum ACP	Maximum ACP	Weighted Average Price*	Minimum ACP	Maximum ACP	Weighted Average Price*	Minimum ACP	Maximum ACP
1-Jul-23	2.50	7.62	3.55	-	-	-	-	-	-
2-Jul-23	2.00	5.50	3.19	-	-	-	-	-	-
3-Jul-23	2.86	10.00	4.18	-	-	-	-	-	-
4-Jul-23	3.00	10.00	4.58	-	-	-	-	-	-
5-Jul-23	3.20	10.00	4.26	-	-	-	-	-	-
6-Jul-23	3.47	10.00	5.16	-	-	-	-	-	-
7-Jul-23	3.54	10.00	5.17	-	-	-	-	-	-
8-Jul-23	2.86	10.00	4.11	-	-	-	-	-	-
9-Jul-23	2.10	5.60	3.26	-	-	-	-	-	-
10-Jul-23	2.30	7.00	3.79	-	-	-	-	-	-
11-Jul-23	3.00	10.00	4.39	-	-	-	-	-	-
12-Jul-23	3.25	10.00	5.13	-	-	-	-	-	-
13-Jul-23	3.32	10.00	4.81	-	-	-	-	-	-
14-Jul-23	3.63	10.00	5.21	-	-	-	-	-	-
15-Jul-23	3.34	10.00	5.09	-	-	-	-	-	-
16-Jul-23	3.00	10.00	4.32	-	-	-	-	-	-
17-Jul-23	3.30	10.00	5.16	-	-	-	-	-	-
18-Jul-23	2.78	10.00	4.79	-	-	-	-	-	-
19-Jul-23	1.83	10.00	4.75	-	-	-	-	-	-
20-Jul-23	3.45	10.00	5.39	-	-	-	-	-	-
21-Jul-23	2.38	10.00	4.72	-	-	-	-	-	-
22-Jul-23	2.00	10.00	4.61	-	-	-	-	-	-
23-Jul-23	1.83	8.00	3.22	-	-	-	-	-	-
24-Jul-23	2.00	10.00	4.30	-	-	-	-	-	-
25-Jul-23	3.48	10.00	4.87	-	-	-	-	-	-
26-Jul-23	2.86	10.00	4.58	-	-	-	-	-	-
27-Jul-23	2.67	10.00	4.43	-	-	-	-	-	-
28-Jul-23	2.00	10.00	4.02	-	-	-	-	-	-
29-Jul-23	1.83	7.92	3.31	-	-	-	-	-	-
30-Jul-23	1.83	5.50	3.01	-	-	-	-	-	-
31-Jul-23	3.05	10.00	4.30	-	-	-	-	-	-
	<b>1.83<sup>#</sup></b>	<b>10.00<sup>#</sup></b>	<b>4.31</b>	-	-	-	-	-	-

Source: IEX, PXIL and HPX

\* Weighted average price computed based on Area Clearing Volume (ACV) and Area Clearing Price (ACP) for each hour of the day. Here, ACV and ACP represent the scheduled volume and weighted average price of all the bid areas of power exchanges.

# Maximum/Minimum in the month



**Table-28(c): PRICE OF REAL TIME TRANSACTIONS (DAY-WISE) (₹/kWh), JULY 2023**

Market Segment	Real Time Market of IEX			Real Time Market of PXIL			Real Time Market of HPX			
	Date	Minimum ACP	Maximum ACP	Weighted Average Price*	Minimum ACP	Maximum ACP	Weighted Average Price*	Minimum ACP	Maximum ACP	Weighted Average Price*
1-Jul-23	2.31	10.00	4.56	-	-	-	-	-	-	-
2-Jul-23	2.00	10.00	4.30	-	-	-	-	-	-	-
3-Jul-23	2.82	10.00	5.94	-	-	-	-	-	-	-
4-Jul-23	2.27	10.00	5.72	-	-	-	-	-	-	-
5-Jul-23	0.49	10.00	3.84	-	-	-	-	-	-	-
6-Jul-23	1.19	6.00	3.43	-	-	-	-	-	-	-
7-Jul-23	0.99	10.00	3.56	-	-	-	-	-	-	-
8-Jul-23	1.50	5.60	2.98	-	-	-	-	-	-	-
9-Jul-23	1.30	10.00	3.63	-	-	-	-	-	-	-
10-Jul-23	2.95	10.00	5.43	-	-	-	-	-	-	-
11-Jul-23	2.50	10.00	5.68	-	-	-	-	-	-	-
12-Jul-23	3.19	10.00	5.17	-	-	-	-	-	-	-
13-Jul-23	3.45	10.00	6.65	-	-	-	-	-	-	-
14-Jul-23	2.83	10.00	5.49	-	-	-	-	-	-	-
15-Jul-23	2.07	10.00	5.82	-	-	-	-	-	-	-
16-Jul-23	1.60	7.50	3.77	-	-	-	-	-	-	-
17-Jul-23	2.51	10.00	5.38	-	-	-	-	-	-	-
18-Jul-23	1.50	6.51	4.05	-	-	-	-	-	-	-
19-Jul-23	2.01	10.00	5.95	-	-	-	-	-	-	-
20-Jul-23	2.96	10.00	5.79	-	-	-	-	-	-	-
21-Jul-23	2.59	10.00	5.52	-	-	-	-	-	-	-
22-Jul-23	1.00	10.00	4.56	-	-	-	-	-	-	-
23-Jul-23	0.60	6.40	3.45	-	-	-	-	-	-	-
24-Jul-23	1.70	10.00	5.24	-	-	-	-	-	-	-
25-Jul-23	2.00	10.00	5.27	-	-	-	-	-	-	-
26-Jul-23	1.51	10.00	3.84	-	-	-	-	-	-	-
27-Jul-23	0.80	6.22	3.05	-	-	-	-	-	-	-
28-Jul-23	0.80	5.70	3.02	-	-	-	-	-	-	-
29-Jul-23	0.70	5.89	2.71	-	-	-	-	-	-	-
30-Jul-23	0.80	7.50	3.31	-	-	-	-	-	-	-
31-Jul-23	1.86	10.00	4.37	-	-	-	-	-	-	-
	<b>0.49#</b>	<b>10.00#</b>	<b>4.55</b>	-	-	-	-	-	-	-

Source: IEX, PXIL and HPX

\* Weighted average price computed based on Area Clearing Volume (ACV) and Area Clearing Price (ACP) for each hour of the day. Here, ACV and ACP represent the scheduled volume and weighted average price of all the bid areas of power exchanges.

# Maximum/Minimum in the month

**Table-29: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (REGIONAL ENTITY\*-WISE)  
(MUs), JULY 2023**

Name of the Entity	Through Bilateral (Traders + PXs + Direct)			Through Power Exchange (DAM + GDAM + HPDAM + RTM)			Total Net***
	Sale	Purchase	Net**	Sale	Purchase	Net**	
PUNJAB	5.76	2131.42	2125.66	174.35	254.53	80.18	2205.84
HARYANA	0.70	1689.62	1688.92	369.94	42.41	-327.53	1361.39
RAJASTHAN	413.30	208.53	-204.77	166.42	526.89	360.47	155.69
DELHI	19.21	1150.95	1131.74	242.69	77.91	-164.78	966.97
UTTAR PRADESH	21.72	1270.68	1248.96	411.78	411.18	-0.59	1248.36
UTTARAKHAND	154.80	113.74	-41.06	58.79	119.27	60.49	19.43
HIMACHAL PRADESH	772.71	13.70	-759.01	354.27	51.42	-302.86	-1061.87
J & K	193.85	2.76	-191.09	187.22	20.84	-166.37	-357.46
CHANDIGARH	0.00	0.00	0.00	40.47	0.39	-40.08	-40.08
MP	682.96	125.62	-557.34	549.41	98.70	-450.71	-1008.05
MAHARASHTRA	210.61	758.90	548.29	154.61	406.06	251.45	799.75
GUJARAT	75.39	209.97	134.58	64.43	570.15	505.72	640.30
CHHATTISGARH	0.00	76.47	76.47	240.92	25.09	-215.83	-139.36
GOA	40.71	69.41	28.70	12.08	20.47	8.39	37.09
DD&DNH	0.00	119.93	119.93	4.19	170.66	166.47	286.40
ANDHRA PRADESH	533.59	260.85	-272.74	142.94	433.03	290.09	17.35
KARNATAKA	954.69	25.11	-929.58	226.82	74.11	-152.72	-1082.30
KERALA	175.52	92.16	-83.36	6.61	335.03	328.43	245.06
TAMIL NADU	341.37	411.93	70.56	154.60	266.29	111.69	182.25
PONDICHERRY	0.00	18.26	18.26	30.93	0.10	-30.83	-12.57
TELANGANA	85.40	535.31	449.91	110.95	849.79	738.84	1188.74
WEST BENGAL	58.18	301.15	242.97	23.90	1322.81	1298.91	1541.88
ODISHA	63.84	303.25	239.42	138.23	146.14	7.90	247.32
BIHAR	1.85	32.18	30.33	319.19	43.94	-275.25	-244.92
JHARKHAND	0.00	225.41	225.41	52.59	54.04	1.45	226.87
SIKKIM	29.85	24.88	-4.97	21.32	1.93	-19.39	-24.35
DVC	143.55	20.40	-123.15	17.41	158.62	141.21	18.06
ARUNACHAL PRADESH	48.56	0.00	-48.56	25.80	1.36	-24.45	-73.01
ASSAM	0.00	179.42	179.42	40.76	84.94	44.17	223.59
MANIPUR	13.30	0.00	-13.30	15.71	3.41	-12.29	-25.59
MEGHALAYA	134.24	1.05	-133.19	6.42	24.35	17.93	-115.26
MIZORAM	0.00	0.00	0.00	4.24	0.00	-4.24	-4.24
NAGALAND	0.32	0.00	-0.32	5.93	0.00	-5.93	-6.25
TRIPURA	0.00	0.00	0.00	3.47	12.83	9.35	9.35
NTPC STATIONS-NR	104.94	0.00	-104.94	49.11	0.00	-49.11	-154.05
NEP	0.00	0.00	0.00	0.00	6.62	6.62	6.62
TEHRI	22.62	0.00	-22.62	0.00	0.00	0.00	-22.62
AD HYDRO	43.09	0.00	-43.09	72.34	0.00	-72.34	-115.43
KARCHAM WANGTOO	10.75	0.00	-10.75	110.97	2.54	-108.42	-119.17
SHREE CEMENT	10.99	0.00	-10.99	8.00	0.00	-8.00	-18.99
LANCO BUDHIL	0.00	0.00	0.00	5.44	0.00	-5.44	-5.44
SORANG HEP	19.91	0.00	-19.91	1.65	0.00	-1.65	-21.55
SAINJ HEP	13.70	0.00	-13.70	19.51	2.60	-16.91	-30.61
SB_SLR	15.45	0.00	-15.45	7.32	0.00	-7.32	-22.78
ASEJTL_SLR	0.00	0.00	0.00	10.46	0.00	-10.46	-10.46
SINGOLI BHATWARI HEP	43.09	0.00	-43.09	32.95	0.15	-32.79	-75.88
AHEJ4L_WIND	92.68	0.00	-92.68	0.00	0.00	0.00	-92.68
AHEJ4L_SOLAR	158.57	0.00	-158.57	0.00	0.00	0.00	-158.57
AVAADASN_SLR	54.45	0.00	-54.45	0.00	0.00	0.00	-54.45
NCR ALLAHABAD	0.00	0.00	0.00	0.00	31.47	31.47	31.47
RENEW_SR_SLR	12.72	0.00	-12.72	46.20	0.00	-46.20	-58.92
THAR1_SLR	45.90	0.00	-45.90	0.00	0.00	0.00	-45.90
ACME_HEERGARH	44.14	0.00	-44.14	0.00	0.00	0.00	-44.14
ABC_BHDL2	54.77	0.00	-54.77	0.00	0.00	0.00	-54.77
KOLYAT_SLR	81.01	0.00	-81.01	0.00	0.00	0.00	-81.01
TATA_GREEN	37.74	0.00	-37.74	0.00	0.00	0.00	-37.74
NTPC STATIONS-WR	1.20	0.00	-1.20	31.40	1.44	-29.96	-31.15
JINDAL POWER	336.61	0.00	-336.61	51.38	0.00	-51.38	-387.99

LANKO_AMK	6.99	0.00	-6.99	0.00	0.00	0.00	-6.99
ACBIL	37.44	0.00	-37.44	75.99	0.01	-75.98	-113.42
BALCO	0.00	36.55	36.55	0.00	21.35	21.35	57.90
DCPP	0.00	0.00	0.00	45.35	1.44	-43.92	-43.92
EMCO	0.00	0.00	0.00	10.32	0.00	-10.32	-10.32
ESSAR POWER	433.66	0.00	-433.66	109.25	0.60	-108.65	-542.31
JINDAL STAGE-II	422.21	0.00	-422.21	51.96	0.39	-51.57	-473.78
DB POWER	175.64	0.00	-175.64	72.03	0.00	-72.03	-247.66
DHARIWAL POWER	38.35	0.00	-38.35	2.58	0.00	-2.58	-40.93
JAYPEE NIGRIE	246.13	0.00	-246.13	184.17	0.00	-184.17	-430.30
MB POWER	0.00	0.00	0.00	113.75	0.00	-113.75	-113.75
MARUTI COAL	7.56	0.00	-7.56	15.78	0.28	-15.49	-23.06
JHABUA POWER_MP	77.34	0.00	-77.34	13.18	0.00	-13.18	-90.51
SASAN UMPP	0.00	0.00	0.00	29.05	0.00	-29.05	-29.05
TRN ENERGY	11.82	0.00	-11.82	8.28	0.00	-8.28	-20.10
RKM POWER	190.10	0.00	-190.10	40.38	0.00	-40.38	-230.48
SKS POWER	142.04	0.00	-142.04	21.48	0.27	-21.21	-163.25
INOX_BHUI	0.61	0.00	-0.61	1.28	0.00	-1.28	-1.89
REGL	7.52	0.00	-7.52	0.00	0.00	0.00	-7.52
RPREL	186.82	0.00	-186.82	0.00	0.00	0.00	-186.82
AMPS Hazira	0.00	288.79	288.79	0.00	37.90	37.90	326.69
RGPPL_IR	0.00	0.00	0.00	0.00	1.07	1.07	1.07
ADANI_WIND	14.07	0.00	-14.07	28.77	0.00	-28.77	-42.84
CONTINNUM PT	15.41	0.00	-15.41	5.99	0.00	-5.99	-21.40
REENERGY5_WIND	4.24	0.00	-4.24	9.43	0.00	-9.43	-13.67
ARTPP	369.16	0.00	-369.16	99.66	0.00	-99.66	-468.82
MTPS	0.00	0.00	0.00	2.39	0.00	-2.39	-2.39
NTPC STATIONS-SR	175.66	0.00	-175.66	19.31	0.00	-19.31	-194.97
SIMHAPURI	338.25	0.00	-338.25	5.23	2.26	-2.97	-341.22
IL&FS	0.00	0.00	0.00	2.65	0.00	-2.65	-2.65
NLC	62.94	0.00	-62.94	9.22	0.00	-9.22	-72.16
SEMBCORP	17.46	0.00	-17.46	78.90	0.00	-78.90	-96.36
OSTRO Hiriya	15.62	0.00	-15.62	35.24	0.00	-35.24	-50.86
NTPC STATIONS-ER	0.00	0.00	0.00	128.45	0.00	-128.45	-128.45
NPGC	0.00	0.00	0.00	13.84	0.00	-13.84	-13.84
ADHUNIK POWER LTD	184.97	0.00	-184.97	12.40	0.00	-12.40	-197.37
CHUZACHEN HEP	0.00	0.00	0.00	11.98	0.00	-11.98	-11.98
GMR KAMALANGA	56.52	0.00	-56.52	0.39	0.00	-0.39	-56.92
JITPL	140.07	0.00	-140.07	126.48	0.00	-126.48	-266.55
TEESTA HEP	571.38	0.00	-571.38	185.17	0.00	-185.17	-756.55
DAGACHU	69.51	0.00	-69.51	0.00	0.00	0.00	-69.51
JORETHANG	5.09	0.00	-5.09	3.32	0.00	-3.32	-8.41
NEPAL(NVVN)	0.00	0.00	0.00	251.12	0.00	-251.12	-251.12
DIKCHU HEP	50.28	0.00	-50.28	27.25	0.00	-27.25	-77.52
TASHIDENG HEP	8.56	0.00	-8.56	4.93	0.00	-4.93	-13.49
NTPC STATIONS-NER	0.00	0.00	0.00	5.86	0.00	-5.86	-5.86
NEEPCO STATIONS	234.68	0.00	-234.68	8.72	0.00	-8.72	-243.40
ONGC PALATANA	0.00	0.00	0.00	21.44	0.00	-21.44	-21.44

Source: NLDC

\* in case of a state, the entities which are "selling" also include generators connected to state grid and the entities which are "buying" also include open access consumers.

\*\* (-) indicates sale and (+) indicates purchase,

\*\*\* Total net includes net of transactions through bilateral and power exchanges

**Table-30: VOLUME AND CHARGES UNDER DSM (DAY-WISE), JULY 2023**

Date	Volume (MU)	All India Grid Charges (₹/kWh)		
		Minimum	Maximum	Average
1-Jul-23	75.15	2.31	10.00	4.58
2-Jul-23	73.24	2.00	10.00	4.59
3-Jul-23	73.31	2.82	10.08	6.30
4-Jul-23	73.82	2.70	10.03	6.14
5-Jul-23	75.32	2.65	10.09	5.34
6-Jul-23	81.67	2.77	10.39	5.26
7-Jul-23	78.00	2.25	10.00	4.52
8-Jul-23	81.08	2.35	6.95	3.69
9-Jul-23	84.86	1.30	10.00	3.67
10-Jul-23	75.41	1.30	10.00	5.53
11-Jul-23	71.21	1.30	10.24	5.78
12-Jul-23	72.37	2.90	10.01	5.67
13-Jul-23	70.61	3.20	10.02	6.53
14-Jul-23	72.12	3.20	10.01	5.79
15-Jul-23	72.84	3.20	10.05	5.88
16-Jul-23	69.31	2.50	10.03	5.35
17-Jul-23	70.02	2.51	10.02	5.54
18-Jul-23	71.38	2.50	10.02	5.14
19-Jul-23	76.70	2.39	10.02	5.33
20-Jul-23	78.08	2.80	10.02	5.93
21-Jul-23	76.82	2.74	10.01	5.95
22-Jul-23	78.79	2.71	10.01	5.59
23-Jul-23	80.20	1.84	10.00	4.71
24-Jul-23	71.61	2.60	10.07	5.15
25-Jul-23	80.45	2.75	10.01	5.36
26-Jul-23	78.41	2.70	10.01	5.28
27-Jul-23	77.72	2.68	10.00	4.70
28-Jul-23	81.80	2.36	10.00	3.89
29-Jul-23	77.20	1.83	10.00	3.58
30-Jul-23	72.01	1.50	10.00	3.61
31-Jul-23	72.77	2.19	10.01	5.02
<b>Total</b>	<b>2344.26</b>	<b>1.30<sup>#</sup></b>	<b>10.39<sup>#</sup></b>	<b>5.14</b>

Source: NLDC

<sup>#</sup> Maximum/Minimum in the month

<b>Table-31: VOLUME OF ELECTRICITY UNDER DRAWAL (EXPORTED) THROUGH DSM, JULY 2023</b>		
<b>Name of the Entity</b>	<b>Volume of Under drawal (MUs)</b>	<b>% of Volume</b>
MAHARASHTRA	145.25	6.05
GUJARAT	134.82	5.62
TAMIL NADU	123.72	5.16
PUNJAB	120.63	5.03
MP	117.35	4.89
RAJASTHAN	115.40	4.81
UTTAR PRADESH	105.29	4.39
ANDHRA PRADESH	72.41	3.02
KARNATAKA	71.84	2.99
NTPC STATIONS-NR	67.82	2.83
HARYANA	66.30	2.76
DELHI	64.02	2.67
J & K	57.68	2.40
CHHATTISGARH	56.90	2.37
BHADRAVATHI HVDC	49.74	2.07
TELANGANA	49.21	2.05
BIHAR	35.12	1.46
NHPC STATIONS	34.70	1.45
STERLITE	29.15	1.21
LANKO KONDAPALLI	28.55	1.19
ODISHA	25.01	1.04
DVC	24.31	1.01
HVDC RAIGARH	23.19	0.97
UTTARAKHAND	21.75	0.91
BBMB	18.55	0.77
HIMACHAL PRADESH	17.79	0.74
NEEPCO STATIONS	17.28	0.72
TRN ENERGY	17.07	0.71
JHARKHAND	16.57	0.69
WEST BENGAL	16.00	0.67
SEMBCORP	15.72	0.66
BANGLADESH	14.17	0.59
IGSTPS	14.03	0.58
DB POWER	13.93	0.58
RSTPS_FSPP	12.01	0.50
MYTRAH_TCN	10.67	0.44
NTPC STATIONS-ER	10.32	0.43
NPGC	10.12	0.42
INOX_BHUJ	10.07	0.42
AVAADASN_SLR	9.95	0.41
ASEJTL_SLR	9.49	0.40
GOA	9.46	0.39
LANKO_AMK	9.33	0.39
PONDICHERRY	9.20	0.38
NJPC	9.19	0.38
ASSAM	9.06	0.38
REGL	8.43	0.35
SBG_PVGD	8.41	0.35
AZURE43_SLR	7.95	0.33
BETAM_TCN	7.83	0.33
SBESS	7.62	0.32
SKS POWER	7.49	0.31
RENERGY5_WIND	7.43	0.31
MEGHALAYA	6.90	0.29
NSPCL	6.85	0.29
ADANI_WIND	6.71	0.28
DAGACHU	6.55	0.27
AVADARJHN_SLR	6.48	0.27
JINDAL STAGE-II	6.15	0.26
MARUTI COAL	6.14	0.26
CHANDIGARH	6.11	0.25

NAPP	6.07	0.25
JORETHANG	6.02	0.25
CONTINNUM PT	5.83	0.24
MIZORAM	5.82	0.24
THARI_SLR	5.79	0.24
RENEW_BHUJ	5.69	0.24
RAMPUR HEP	5.62	0.23
DD&DNH	5.57	0.23
FRV_NPK	5.57	0.23
AVIKIRAN	5.52	0.23
ACME_HEERGARH	5.52	0.23
ARUNACHAL PRADESH	5.39	0.22
AMPS Hazira	5.28	0.22
CLEAN_SLR	5.26	0.22
OSTRO	5.22	0.22
ACME_RUMS	4.91	0.20
FRV_ANTP	4.84	0.20
RENEW_SR_SLR	4.76	0.20
RAIL	4.70	0.20
AYANA_RP1	4.66	0.19
AZURE41_SLR	4.64	0.19
RGPPL	4.61	0.19
ADHUNIK POWER LTD	4.60	0.19
RENEWSB	4.55	0.19
TEESTA HEP	4.30	0.18
RENEWURJA_SLR	4.24	0.18
RENEW_BHACHAU	4.20	0.17
NTPL	4.10	0.17
ACME_SLR	4.08	0.17
NAGALAND	4.03	0.17
SESPL	3.99	0.17
ARINSUM_RUMS	3.93	0.16
RENEW_SLR_BKN	3.92	0.16
ABC_BHDL2	3.92	0.16
SBSR_SLR	3.79	0.16
GRT_JPL	3.78	0.16
DHARIWAL POWER	3.76	0.16
SRSSFPL	3.75	0.16
OPGC	3.68	0.15
TRIPURA	3.67	0.15
TATA_SLR	3.66	0.15
HVDC ALPD	3.64	0.15
EDEN_SLR	3.64	0.15
KAPP 3&4	3.42	0.14
SB6_POKARAN	3.39	0.14
SPRNG_NPKUNTA	3.37	0.14
MSUPL_BHDL2	3.36	0.14
GIPCL_RADHANESDA	3.34	0.14
ARERJL_SLR	3.30	0.14
POWERICA	3.30	0.14
RENEWJH_SLR	3.21	0.13
KERALA	3.18	0.13
ADY2_PVGD	3.18	0.13
NEP	3.17	0.13
DGEN MEGA POWER	3.15	0.13
OSTRO Hiriyur	3.13	0.13
BRBCL,NABINAGAR	3.11	0.13
RENEWSW_SLR	3.09	0.13
AGEMPL BHUJ	3.09	0.13
CLEANSPL_SLR	3.07	0.13
AZURE_SLR	3.02	0.13
SASAN UMPP	2.93	0.12
SIKKIM	2.90	0.12

NTPC STATIONS-NER	2.75	0.11
SINGOLI BHATWARI HEP	2.65	0.11
NTPC STATIONS-WR	2.62	0.11
SB_SLR	2.58	0.11
AVAADA2_PVGD	2.51	0.10
ACBIL	2.50	0.10
AD HYDRO	2.50	0.10
DCPP	2.50	0.10
GIWEL_BHUJ	2.42	0.10
GIWEL_TCN	2.40	0.10
ADY1_PVGD	2.39	0.10
RANGANADI HEP	2.35	0.10
MANIPUR	2.34	0.10
TEHRI	2.33	0.10
KSK MAHANADI	2.32	0.10
FORTUM1_PVGD	2.32	0.10
TATA_PVGD	2.25	0.09
KOTESHWAR	2.20	0.09
AZURE_MAPLE_SLR	2.16	0.09
AHSP_ANTP	2.09	0.09
MTPS II	2.00	0.08
RONGNICHU HEP	1.93	0.08
GSECL_Radhnesda	1.90	0.08
ESPL_RADHANESDA	1.90	0.08
KREDL_PVGD	1.87	0.08
ONGC PALATANA	1.76	0.07
APRAAVA	1.65	0.07
YARROW_PVGD	1.64	0.07
JSW_RENEW_2	1.61	0.07
BALCO	1.60	0.07
KARCHAM WANGTOO	1.55	0.06
RKM POWER	1.54	0.06
AZURE34_SLR	1.48	0.06
BARC	1.43	0.06
ESSAR POWER	1.37	0.06
TATA_GREEN	1.37	0.06
NETCL VALLUR	1.36	0.06
MRPL	1.36	0.06
SKRPL	1.30	0.05
KSMPL_SLR	1.23	0.05
RAP C	1.21	0.05
CHUZACHEN HEP	1.20	0.05
SPRING_PUGALUR	1.20	0.05
FORTUM2_PVGD	1.17	0.05
ADANI GREEN	1.15	0.05
EMCO	0.95	0.04
AYANA_NPKUNTA	0.92	0.04
NEPAL(NVVN)	0.91	0.04
PARAM_PVGD	0.85	0.04
RENEW_SLR	0.84	0.03
ARTPP	0.83	0.03
JAYPEE NIGRIE	0.80	0.03
DIKCHU HEP	0.79	0.03
IL&FS	0.78	0.03
AZURE_ANTP	0.76	0.03
PARE HEP	0.71	0.03
ABSP_ANTP	0.68	0.03
MEENAKSHI	0.68	0.03
RANGIT HEP	0.66	0.03
GMR KAMALANGA	0.66	0.03
AKSP_ANTP	0.58	0.02
ARS_PVGD	0.56	0.02
AVAADA1_PVGD	0.55	0.02

ORANGE_TCN	0.54	0.02
RAP B	0.54	0.02
CGPL	0.51	0.02
NFF	0.50	0.02
RENEW_PVGD	0.49	0.02
AKS_PVGD	0.49	0.02
Railways_ER ISTS	0.45	0.02
NTPC_ANTP	0.45	0.02
TATA_ANTP	0.44	0.02
SBG_NPK	0.44	0.02
HVDC PUS	0.41	0.02
SAINJ HEP	0.40	0.02
SORANG HEP	0.36	0.02
THERMAL POWERTECH	0.36	0.01
NLC	0.35	0.01
JITPL	0.34	0.01
LANCO BUDHIL	0.28	0.01
DOYANG HEP	0.26	0.01
LOKTAK	0.22	0.01
MAHINDRA_RUMS	0.18	0.01
TEESTA STG3	0.17	0.01
JINDAL POWER	0.16	0.01
SHREE CEMENT	0.12	0.01
RGPPL_IR	0.08	0.003
TASHIDENG HEP	0.04	0.002
VINDHYACHAL HVDC	0.01	0.0003
<b>Total</b>	<b>2399.45</b>	<b>100.00</b>
<b>Volume Exported by top 5 Regional Entities</b>	<b>641.77</b>	<b>26.75</b>



<b>Table-32: VOLUME OF ELECTRICITY OVER DRAWAL (IMPORTED) THROUGH DSM, JULY 2023</b>		
<b>Name of the Entity</b>	<b>Volume of Over drawal (MUs)</b>	<b>% of Volume</b>
BHADRAVATHI HVDC	143.00	6.25
STERLITE	123.95	5.42
NTPC STATIONS-NR	114.75	5.01
LANCO KONDAPALLI	91.86	4.01
GUJARAT	76.37	3.34
RAJASTHAN	66.90	2.92
TELANGANA	64.70	2.83
ANDHRA PRADESH	58.76	2.57
WEST BENGAL	53.64	2.34
UTTAR PRADESH	50.79	2.22
KARNATAKA	50.69	2.21
KERALA	45.91	2.01
HARYANA	44.81	1.96
BIHAR	43.38	1.90
ODISHA	37.96	1.66
HIMACHAL PRADESH	34.58	1.51
TAMIL NADU	32.75	1.43
JHARKHAND	31.66	1.38
MAHARASHTRA	29.81	1.30
UTTARAKHAND	29.32	1.28
IL&FS	25.57	1.12
REGL	25.07	1.10
ASSAM	22.95	1.00
PUNJAB	22.83	1.00
HVDC RAIGARH	21.56	0.94
DCPP	21.37	0.93
NHPC STATIONS	21.24	0.93
INOX_BHUJ	20.07	0.88
MP	19.20	0.84
J & K	18.89	0.83
DVC	18.54	0.81
AGEMPL BHUJ	18.24	0.80
SEMBCORP	16.87	0.74
CHHATTISGARH	16.35	0.71
RENERGY5_WIND	15.94	0.70
AZURE43_SLR	15.64	0.68
AVAADASN_SLR	14.85	0.65
IGSTPS	14.84	0.65
NETCL VALLUR	13.97	0.61
BANGLADESH	13.15	0.57
ACME_RUMS	12.79	0.56
ADHUNIK POWER LTD	12.44	0.54
JINDAL STAGE-II	12.37	0.54
AVADARJHN_SLR	11.42	0.50
RENEW_BHUJ	11.14	0.49
KARCHAM WANGTOO	10.97	0.48
RGPPL	10.76	0.47
NTPC STATIONS-ER	10.71	0.47
ADANI_WIND	10.39	0.45
SBESS	10.20	0.45
NEP	10.16	0.44
TRIPURA	10.14	0.44
FRV_NPK	10.07	0.44
HVDC CHAMPA	10.04	0.44
FRV_ANTP	9.72	0.42
NTPL	9.53	0.42
MYTRAH_TCN	9.28	0.41
ASEJTL_SLR	9.20	0.40
DELHI	8.55	0.37
BETAM_TCN	8.11	0.35
FORTUM1_PVGD	7.72	0.34
ABC_BHDL2	7.58	0.33
TATA_GREEN	7.54	0.33
DIKCHU HEP	7.52	0.33
ARINSUM_RUMS	7.49	0.33
OSTRO Hiriyur	7.45	0.33
SBG_PVGD	7.43	0.32
RENEW_BHACHAU	7.36	0.32

ADY2_PVGD	7.34	0.32
NTPC STATIONS-NER	7.08	0.31
TATA_SLR	6.88	0.30
BRBCL,NABINAGAR	6.75	0.30
GIWEL_BHUJ	6.72	0.29
AYANA_RP1	6.70	0.29
CHANDIGARH	6.61	0.29
RSTPS_FSPP	6.59	0.29
THARI_SLR	6.51	0.28
SPRNG_NPKUNTA	6.49	0.28
GOA	6.36	0.28
SBSR_SLR	6.29	0.27
RENEW_SR_SLR	6.23	0.27
CONTINNUM PT	6.20	0.27
AZURE_MAPLE_SLR	6.18	0.27
SB6_POKARAN	6.16	0.27
AVAADA2_PVGD	6.15	0.27
MTPS II	5.99	0.26
RENEWSW_SLR	5.95	0.26
RENEWJH_SLR	5.75	0.25
OSTRO	5.74	0.25
MARUTI COAL	5.72	0.25
DD&DNH	5.64	0.25
EDEN_SLR	5.60	0.24
RENEW_SLR_BKN	5.49	0.24
CLEAN_SLR	5.33	0.23
ARUNACHAL PRADESH	5.32	0.23
SESPL	5.23	0.23
POWERICA	5.20	0.23
GIPCL_RADHANESDA	5.17	0.23
AZURE41_SLR	5.05	0.22
CLEANSR_SLR	5.03	0.22
ACME_HEERGARH	4.96	0.22
RENEWSB	4.95	0.22
RENEWURJA_SLR	4.74	0.21
SASAN UMPP	4.74	0.21
TATA_PVGD	4.65	0.20
SIKKIM	4.50	0.20
MSUPL_BHDL2	4.41	0.19
TEHRI	4.38	0.19
DB POWER	4.38	0.19
GIWEL_TCN	4.33	0.19
Railways_ER ISTS	4.30	0.19
AHSP_ANTP	4.16	0.18
NJPC	3.93	0.17
GRT_JPL	3.91	0.17
ACME_SLR	3.90	0.17
SRSSFPL	3.75	0.16
HVDC PUS	3.74	0.16
SB_SLR	3.65	0.16
YARROW_PVGD	3.40	0.15
ARERJL_SLR	3.38	0.15
AZURE_SLR	3.38	0.15
MANIPUR	3.38	0.15
RAIL	3.20	0.14
AD HYDRO	3.17	0.14
MEENAKSHI	3.14	0.14
KREDL_PVGD	3.14	0.14
JSW_RENEW_2	3.06	0.13
DHARIWAL POWER	3.06	0.13
AMPS Hazira	2.99	0.13
NAPP	2.97	0.13
PONDICHERRY	2.96	0.13
APRAAVA	2.89	0.13
MEGHALAYA	2.88	0.13
SORANG HEP	2.85	0.12
ADY1_PVGD	2.85	0.12
ACBIL	2.82	0.12
JORETHANG	2.76	0.12
MRPL	2.60	0.11

PARAM_PVGD	2.55	0.11
NTPC STATIONS-WR	2.53	0.11
ESPL_RADHANESDA	2.52	0.11
JAYPEE NIGRIE	2.50	0.11
GSECL_Radhanesda	2.47	0.11
SPRING_PUGALUR	2.44	0.11
SHREE CEMENT	2.37	0.10
FORTUM2_PVGD	2.36	0.10
CGPL	2.32	0.10
AZURE34_SLR	2.27	0.10
SKRPL	2.27	0.10
JITPL	2.21	0.10
THERMAL POWERTECH	2.19	0.10
BBMB	2.12	0.09
SKS POWER	1.94	0.08
TRN ENERGY	1.85	0.08
AKS_PVGD	1.84	0.08
NPGC	1.83	0.08
SINGOLI BHATWARI HEP	1.81	0.08
NLC	1.71	0.07
BALCO	1.58	0.07
ARTPP	1.58	0.07
NTPC_ANTP	1.53	0.07
ORANGE_TCN	1.46	0.06
TEESTA HEP	1.37	0.06
TATA_ANTP	1.36	0.06
CHUZACHEN HEP	1.35	0.06
NEEPCO STATIONS	1.34	0.06
RENEW_PVGD	1.31	0.06
ADANI GREEN	1.29	0.06
KSK MAHANADI	1.27	0.06
AKSP_ANTP	1.25	0.05
BARC	1.25	0.05
AVAADA1_PVGD	1.24	0.05
ARS_PVGD	1.23	0.05
RANGIT HEP	1.21	0.05
AZURE_ANTP	1.21	0.05
ABSP_ANTP	1.18	0.05
KSMPL_SLR	1.15	0.05
MB POWER	1.07	0.05
SBG_NPK	1.02	0.04
ESSAR POWER	0.99	0.04
NEPAL(NVVN)	0.95	0.04
RENEW_SLR	0.92	0.04
ONGC PALATANA	0.87	0.04
RAMPUR HEP	0.79	0.03
RAP C	0.77	0.03
AYANA_NPKUNTA	0.77	0.03
EMCO	0.68	0.03
LANCO BUDHIL	0.66	0.03
DGEN MEGA POWER	0.58	0.03
NSPCL	0.57	0.02
RANGANADI HEP	0.54	0.02
PARE HEP	0.49	0.02
SAINJ HEP	0.49	0.02
LANKO_AMK	0.48	0.02
RAP B	0.47	0.02
NAGALAND	0.39	0.02
SIMHAPURI	0.39	0.02
MIZORAM	0.39	0.02
GMR KAMALANGA	0.38	0.02
RONGNICHU HEP	0.34	0.01
OPGC	0.33	0.01
COASTGEN	0.30	0.01
AVIKIRAN	0.27	0.01
KOTESHWAR	0.25	0.01
LOKTAK	0.22	0.01
RKM POWER	0.22	0.01
DOYANG HEP	0.14	0.01
NFF	0.10	0.005

RGPPL_IR	0.10	0.004
TASHIDENG HEP	0.09	0.004
VINDHYACHAL HVDC	0.09	0.004
HVDC ALPD	0.05	0.002
DAGACHU	0.04	0.002
MAHINDRA_RUMS	0.01	0.0002
TEESTA STG3	0.005	0.0002
<b>TOTAL</b>	<b>2289.07</b>	<b>100.00</b>
<b>Volume Imported by top 5 Regional Entities</b>	<b>549.94</b>	<b>24.02</b>

**Table-33: VOLUME AND PRICE OF RENEWABLE ENERGY CERTIFICATES (RECs) TRANSACTED THROUGH POWER EXCHANGES, JULY 2023**

Sr. No	Details of REC Transactions	Through Power Exchange			Bilateral through Traders
		IEX	PXIL	HPX	
1	Volume of Buy Bid	703982	120630	600	-
2	Volume of Sell Bid	10339476	3257517	262406	-
3	Ratio of Buy Bid to Sell Bid Volume	0.07	0.04	0.002	-
4	Traded Volume (MWh)	623982	100630	600	133367
5	Weighted average Price (₹/MWh)	650.00	590.00	675.00	579.16

Source: Power Exchanges & Grid-India REC Report

Note: 1 REC = 1 MWh

Under the CERC REC Regulations 2022, the categorization of RECs has been dispensed with and exchange of RECs through trading licensees has also been allowed

**Table-34: VOLUME AND PRICE OF CROSS BORDER TRADE THROUGH DAY AHEAD MARKET AT IEX, JULY 2023**

Sr. No.	Neighbouring Country	Volume (MU)			Weighted Average Price (₹/kWh)	
		Sale	Purchase	Net*	Sale	Purchase
1	Nepal	251.12	6.62	-244.50	4.46	4.06
2	Bhutan	0.00	0.00	0.00	-	-
	<b>Total</b>	<b>251.12</b>	<b>6.62</b>	<b>-244.50</b>	-	-

Source: IEX

\* Net indicates difference of volume purchased and sold by the respective neighbouring country

Note: No Cross Border transactions were recorded in DAM at PXIL and HPX



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