

Monthly Report on Short-term Transactions of Electricity in India

November, 2019



Economics Division
Central Electricity Regulatory Commission
36, Janpath, Chanderlok Building



Contents

S.No.	Contents	Page No
	Contents	i
	List of Tables and Figures	ii
	Abbreviations	iii
	Introduction	1
I	Volume of Short-term Transactions of Electricity	1
II	Price of Short-term Transactions of Electricity	2
(i)	<i>Price of electricity transacted through Traders</i>	2
(ii)	<i>Price of electricity transacted through Power Exchanges</i>	3
(iii)	<i>Price of electricity transacted through DSM</i>	3
III	Trading Margin	3
IV	Volume of Short-term Transactions of Electricity (Regional Entity-wise)	3
V	Congestion on Inter-State Transmission Corridor for Day-Ahead Market on Power Exchanges	4
VI	Bilateral Contracts executed by Traders	5
(i)	<i>Duration of bilateral contracts</i>	5
(ii)	<i>Forward Curve based on Price of bilateral contracts</i>	6
VII	Volume and Price of Renewable Energy Certificates (RECs)	6
VIII	Inferences	8

List of Tables and Figures

S.No.	List of Tables and Figures	Page No.
I	List of Tables	
Table-1	Volume of Short-term Transactions of Electricity in India	10
Table-2	Percentage Share of Electricity Transacted by Trading Licensees	12
Table-3	Price of Electricity Transacted through Traders	13
Table-4	Price of Electricity Transacted through Traders (Time-wise)	13
Table-5	Price of Electricity Transacted through Power Exchanges	13
Table-6	Volume and Price of Electricity in Term Ahead Market of IEX	13
Table-7	Volume and Price of Electricity in Term Ahead Market of PXIL	13
Table-8	Price of Electricity Transacted through DSM	13
Table-9	Volume of Electricity Sold through Bilateral	15
Table-10	Volume of Electricity Purchased through Bilateral	16
Table-11	Volume of Electricity Sold through Power Exchanges	17
Table-12	Volume of Electricity Purchased through Power Exchanges	19
Table-13	Volume of Electricity Under drawal through DSM	20
Table-14	Volume of Electricity Over drawal through DSM	23
Table-15	Total Volume of Net Short-term Transactions of Electricity (Regional Entity-wise)	26
Table-16	Details of Congestion in Power Exchanges	29
Table-17	Volume of Short-term Transactions of Electricity in India (Day-wise)	30
Table-18	Price of Electricity in Short-term Transactions (Day-wise)	31
Table-19	Volume of Short-term Transactions of Electricity (Regional Entity-wise)	32
Table-20	Volume and Price of Renewable Energy Certificates (RECs) Transacted through Power Exchanges	36
II	List of Figures	
Figure-1	Volume of Short-term Transactions of Electricity	10
Figure-2	Volume of Various Kinds of Electricity Transactions in Total Electricity Generation	10
Figure-3	Volume of Short-term Transactions of Electricity (Day-wise)	11
Figure-4	Percentage Share of Electricity Transacted by Trading Licensees	12
Figure-5	Price of Electricity in Short-term Transactions	14
Figure-6	Price of Electricity in Short-term Transactions (Day-wise)	14
Figure-7	Bilateral Contracts Executed by Traders in December, 2019	35
Figure-8	Forward Curve based on Prices of Bilateral Contracts	35

Abbreviations

Abbreviation	Expanded Version
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
AGEMPL BHUJ	Adani Green Energy (MP) Ltd.,Bhuj
ARINSUM_RUMS	Solenergi Rewa Ultra Mega Solar Project
AZURE_SLR	Azure Power Solar Power Project
AZURE34_SLR	Azure Power 34 Pvt. Ltd. Solar Power Project
BALCO	Bharat Aluminum Company Limited
BARC	Bhabha Atomic Research Centre
BBMB	Bhakra Beas Management Board
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
COASTGEN	Coastal Energen Private Limited
DAGACHU	Dagachhu Hydro Power Corporation
DB POWER	Diligent Power Pvt. Ltd.
DCPP	Donga Mahua Captive Power Plant
DGEN MEGA POWER	DGEN Mega Power Project
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
EMCO	EMCO Energy Limited
ESSAR POWER	Essar Power Limited
ESSAR STEEL	Essar Steel Ltd
GIWEL_BHUJ	Green infra wind energy Limited, Bhuj
GMR CHHATTISGARH	GMR Chhattisgarh Energy Limited
GMR KAMALANGA	GMR Kamalanga Energy Ltd.
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
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
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
KSK MAHANADI	KSK Mahanadi Power Ltd
KURICHU HEP	Kurichhu Hydro-electric Power Station, Bhutan
LANKO_AMK	LancoAmarkantak Power Private Limited
LANKO BUDHIL	LancoBudhil Hydro Power Private Limited
LANKO KONDAPALLY	LancoKondapally Power Private Limited
LOKTAK	Loktak Power Project
MAHINDRA_RUMS	Mahindra Rewa Ultra Mega Solar Project
MAHOBASLR	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
MTPS II	Muzaffarpur Thermal Power Station – Stage II
MUs	Million Units
NAPP	Narora Atomic Power Plant
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
NTECL Vallur	NTPC Tamil Nadu Energy Company Limited Vallur
NTPC STATIONS	National Thermal Power Corporation Ltd. Stations
NTPL	NLC Tamil Nadu Power Limited
NVVN	NTPC Vidyut Vyapar Nigam Limited
ONGC Platana	ONGC Tripura Power Company
OPGC	Odisha Power Generation Corporation
OSTRO	Ostro Energy Private Limited
OTC	Over The Counter
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
RENEW_BHACHAU	ReNew Power Limited, Bhachau
RENEW_SLR	Renew Solar
RGPPL	Ratnagiri Gas and Power Private Limited
RLDC	Regional Load Dispatch Centre
RTC	Round The Clock
Sasan UMPP	Sasan Ultra Mega Power Project
SB_SLR	Soft Bank Solar
SEMBCORP	Sembcorp Gayatri Power Ltd
SHREE CEMENT	Shree Cement Limited
SIMHAPURI	Simhapuri Energy Private Limited
SKS Power	SKS Power Generation Chhattisgarh Limited
SPECTRUM	Spectrum Power Generation Ltd
TALA HEP	Tala Hydroelectric Project, Bhutan
TASHIDENG HEP	Tashiding Hydro Electric Project, Sikkim
TATA_SLR	Tata Solar
TEESTA STG3	Teesta Stage 3 Hydro Power Project
TEHRI	Tehri Hydro Electric Power Project
THERMAL POWERTECH	Thermal Powertech Corporation India Limited
URI-II	Uri-II Hydropower Project
VINDHYACHAL HVDC	Vindhyachal High Voltage Direct Current Link

Introduction

A well-functioning electricity market requires an effective market monitoring process. As part of the market monitoring process, the monthly report on short-term transactions of electricity, is being prepared and posted on the website of CERC since August 2008. Here, “short-term transactions of electricity” refers to the contracts of less than one year period, for electricity transacted (inter-State) through inter-State Trading Licensees and directly by the Distribution Licensees, Power Exchanges (Indian Energy Exchange Ltd (IEX) and Power Exchange India Ltd (PXIL), and Deviation Settlement Mechanism (DSM). The objectives of the report are: (i) to observe the trends in volume and price of the short-term transactions of electricity; (ii) to analyse competition among the market players; (iii) to analyse effect of congestion on volume of electricity transacted through power exchanges; (iv) to analyse bilateral contracts executed by traders; (v) to provide information on volume and price of Renewable Energy Certificates (RECs) transacted through power exchanges; and (vi) to disclose/disseminate all relevant market information. The details of the report for the month of **November, 2019** are as under:

I: Volume of Short-term Transactions of Electricity

During November 2019, total electricity generation excluding generation from renewable and captive power plants in India was 93540.03 MUs (Table-1).

Of the total electricity generation, 9439.62MUs (10.09%) was transacted through short-term, comprising of 4426.30 MUs (4.73%) through bilateral (through traders and term-ahead contracts on power exchanges and directly between distribution companies), followed by 3389.25 MUs (3.62%) through day ahead collective transactions on power exchanges and 1624.07 MUs (1.74%) through DSM (Table-1 & Figure-2).

Of the total short-term transactions, bilateral constitutes 46.89% (17.81% through traders and term-ahead contracts on power exchanges and 29.08% directly between distribution companies) followed by 35.90% through day ahead collective transactions on power exchanges and 17.20% through DSM (Table-1 & Figure-1). Daily volume of short-term transactions is shown in Table-17 & Figure-3.

The percentage share of electricity traded by each trading licensee in the total volume of electricity traded by all the trading licensees is provided in Table-2 & Figure-4. The volume of electricity transacted by the trading licensees includes bilateral transactions and the transactions undertaken through power exchanges. There were 36 trading licensees as on November 2019. In November 2019, 24 trading licensees were engaged in short term trading. Top 5 trading licensees had a share of 73.48% in the total volume traded by all the licensees. These are PTC India Ltd., Adani Enterprises Ltd., Manikaran Power Ltd., Kreate Energy (I) Pvt. Ltd. and TATA Power Trading Company (P) Ltd.

Herfindahl-Hirschman Index (HHI) has been used for measuring the competition among the trading licensees. Increase in the HHI generally indicates decrease in competition and increase of 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 0.1438 for the month of November 2019, which indicates non-concentration of market power (Table-2).

The volume of electricity transacted through IEX and PXIL in the day ahead market was 3388.84 MUs and 0.42 MUs respectively. The volume of total buy bids and sell bids was 4108.08 MUs and 8579.16 MUs respectively in IEX while the same was 0.42 MUs and 23.20 MUs respectively in PXIL. The variation in the volume of buy bids and sell bids placed through power exchanges shows variation in the demand and supply position.

The volume of electricity transacted through IEX and PXIL in the term-ahead market was 436.13 MUs and 131.16 MUs respectively (Table-6 & Table-7).

II: Price of Short-term Transactions of Electricity

(i) *Price of electricity transacted through Traders:* The minimum, maximum and weighted average sale prices have been computed for the electricity transacted through traders and the sale prices were ₹2.98/kWh, ₹5.50/kWh and ₹3.61/kWh respectively (Table-3). The weighted average sale prices were also computed for the transactions during

Round the Clock (RTC), Peak and Off-peak periods separately, and the sale prices were ₹3.68/kWh, ₹3.82/kWh and ₹3.51/kWh respectively (Table-4).

(ii) Price of electricity transacted through Power Exchanges: The minimum, maximum and weighted average prices have been computed for the electricity transacted through IEX and PXIL. The minimum, maximum and weighted average prices were ₹1.80/kWh, ₹7.93/kWh and ₹2.94/kWh respectively in IEX and these were ₹2.91/kWh, ₹3.15/kWh and ₹3.02/kWh respectively in PXIL (Table-5).

The price of electricity transacted through IEX and PXIL in the term-ahead market was ₹3.45/kWh and ₹3.19/kWh respectively (Table-6 and Table-7).

(iii) Price of electricity transacted through DSM: The average deviation settlement price was ₹2.49/kWh. The minimum and maximum deviation settlement prices were ₹0.00/kWh and ₹8.00/kWh respectively (Table-8).

The prices of electricity transacted through trading licensees, power exchanges and DSM and their comparison is shown in Table-18, Figure-5 & 6.

III: Trading Margin

As per the CERC (Fixation of Trading Margin) Regulations, 2010, the trading licensees are allowed to charge trading margin upto 7 paise/kWh in case the sale price exceeds ₹3/kWh, and 4 paise/kWh where the sale price is less than or equal to ₹3/kWh. The weighted average trading margin charged by the trading licensees for bilateral transactions during the month was ₹0.030/kWh, where the sale price was less than or equal to ₹3/kWh and ₹0.037/kWh, when the sale price exceeded ₹3/kWh.

IV: Volume of Short-term Transactions of Electricity (Regional Entity¹-Wise)

Of the total bilateral transactions, top 5 regional entities sold 49.38% of the volume, and these were Punjab, Gujarat, GMR Chhattisgarh Energy Limited, IL&FS and Delhi. Top 5

¹ 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.

regional entities purchased 63.86% of the volume, and these were Madhya Pradesh, Andhra Pradesh, Tamil Nadu, Gujarat and Maharashtra (Table-9 & 10).

Of the total power exchange transactions, top 5 regional entities sold 34.37% of the volume, and these were Madhya Pradesh, Karnataka, Teesta Stage 3 Hydro Power Project, Assam, and Odisha. Top 5 regional entities purchased 46.70% of the volume, and these were Tamil Nadu, Gujarat, Andhra Pradesh, Telangana and Maharashtra (Table-11 & 12).

Of the total DSM transactions, top 5 regional entities under drew 23.06% of the volume, and these were Rajasthan, Jammu & Kashmir, Madhya Pradesh, Chhukha Hydroelectric Project Bhutan and Gujarat (Table-13). Top 5 regional entities overdrew 23.23% of the volume, and these were Tala Hydroelectric Project Bhutan, NTPC Station (Western Region), Tamil Nadu, Rajasthan and NTPC Station (Northern Region) (Table-14).

Regional entity-wise total volume of net short-term transactions of electricity i.e. volume of net transactions through bilateral, power exchanges and DSM is shown in Table-15 & 19. Top 5 electricity selling regional entities were Punjab, GMR Chhattisgarh Energy Limited, IL&FS, Thermal Powertech Corporation India Ltd. and Odisha. Top 5 electricity purchasing regional entities were Tamil Nadu, Andhra Pradesh, Madhya Pradesh, Maharashtra and Haryana.

V: Congestion² on Inter-State Transmission Corridor for Day-Ahead Market on Power Exchanges

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 step 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

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

the flow (due to congestion) in the inter-State transmission system. In such a situation, power exchanges adopt a mechanism called “Market Splitting”³.

In the month of November 2019, congestion only occurred in IEX. The details of congestion are shown in Table-16. 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, the volume of electricity that could not be cleared in IEX due to congestion was 0.40% of the unconstrained cleared volume. In terms of time, congestion occurred was 1.39% in IEX (Table-16).

VI: Bilateral Contracts executed by Traders

The above sections covered an analysis on short-term transactions of electricity in November, 2019. This section covers an analysis of bilateral contracts executed in December, 2019.

(i) Duration of bilateral contracts: During December 2019, a total of 54 bilateral contracts (excluding banking/swap contracts) have been executed by traders for the volume of 354.99 MUs. Figure-7 shows the percentage of contracts categorized according to the period of power supply. It can be observed from the figure that 72.22% of the bilateral contracts were executed for duration of up to one week, 27.78% of the contracts were executed for duration of more than a week and up to one month, while no contracts were executed for duration of more than one month and up to twelve months.

During the month, 13 banking/swapping bilateral contracts were also executed for the volume of 239.75 MUs.

³“ Market Splitting” is a mechanism adopted by Power Exchange 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.

(ii) Forward Curve based on price of bilateral contracts: A forward curve reflects present day's expectation of prices for a future period. The forward curve of electricity prices are based on sale prices of bilateral contracts executed by traders. The price of each contract for each day is taken into consideration while constructing the forward curve. On the basis of these prices, the weighted average price for each day is calculated using various sale prices of contracts for delivery on that particular day.

Figure-8 represents the forward curve of electricity sale prices for the period from 1st December, 2019 to 31st March, 2020 based on the bilateral contracts⁴ executed till December, 2019. Forward curves have been drawn for the contracts executed in November, 2019 and December, 2019 for the purpose of comparison. It is observed that the forward contract prices are lower for the contracts executed in December 2019 compared to the contracts executed in November 2019, during the period from 1st January 2020 to 31st January 2020.

VII: Volume and Price of Renewable Energy Certificates (RECs)

The concept of Renewable Energy Certificates (RECs) seeks to address mismatch between 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 development of electricity market.

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.

The details of REC transactions for the month of November, 2019 are shown in Table-20. The market clearing volume of solar RECs transacted on IEX and PXIL were 36801 and 17652 respectively and the weighted average market clearing price of these RECs was ₹2400/MWh in IEX and ₹2400/MWh in PXIL. Market clearing volume of non-solar

⁴Excluding Banking/Swapping contracts

RECs transacted on IEX and PXIL were 291932 and 159288 respectively and the weighted average market clearing price of these RECs was ₹1800/MWh in IEX and ₹1850/MWh in PXIL.

The gap between the volume of buy and sell bids of RECs placed through power exchanges shows about the variation in demand for both solar and non-solar RECs. For Solar RECs, the ratio of buy bids to sell bids was 12.83 and 11.71 in IEX and PXIL respectively. For non-solar RECs, the ratio of buy bids to sell bids was 2.17 and 3.52 in IEX and PXIL respectively.

VIII: Inferences:

- The percentage of short-term transactions of electricity to total electricity generation was 10.09%.
- Of the total short-term transactions, bilateral constitutes 46.89% (17.81% through traders and term-ahead contracts on power exchanges and 29.08% directly between distribution companies) followed by 35.90% through day ahead collective transactions on power exchanges and 17.20% through DSM.
- Top 5 trading licensees had a share of 73.48% in the total volume traded by all the trading licensees.
- The Herfindahl Hirschman Index computed for the volume of electricity traded by trading licensees was 0.1438, indicating non-concentration of market power.
- The weighted average price of electricity transacted through trading licensees was ₹3.61/kWh. The weighted average price of electricity transacted through IEX and PXIL were ₹2.94/kWh and ₹3.02/kWh respectively.
- The average price of electricity transacted through DSM was ₹2.49/kWh.
- The weighted average trading margin charged by the trading licensees for bilateral transactions during the month was ₹0.030/kWh, where the sale price was less than or equal to ₹3/kWh and ₹0.037/kWh, when the sale price exceeded ₹3/kWh. The trading margin charged during the month was in line with the Trading Margin regulations.
- Top 5 electricity selling regional entities were Punjab, GMR Chhattisgarh Energy Limited, IL&FS, Thermal Powertech Corporation India Ltd. and Odisha. Top 5 electricity purchasing regional entities were Tamil Nadu, Andhra Pradesh, Madhya Pradesh, Maharashtra and Haryana.
- During the month of November 2019, the volume of electricity that could not be cleared in IEX due to congestion was 0.40% of the unconstrained cleared volume. In terms of time, congestion occurred was 1.39% in IEX. PXIL did not witness any congestion.

- In December 2019, 72.22% of the bilateral contracts were executed for duration of up to one week, 27.78% of the contracts were executed for duration of more than a week and up to one month, while no contracts were executed for duration of more than one month and up to twelve months.
- The forward curves based on prices of bilateral contracts show that the prices are lower for the contracts executed in December 2019 compared to the contracts executed in November 2019, during the period from 1st January 2020 – 31st January 2020.
- The market clearing volume of solar RECs transacted on IEX and PXIL were 36801 and 17652 respectively and the weighted average market clearing price of these RECs was ₹2400/MWh in IEX and ₹2400/MWh in PXIL. Market clearing volume of non-solar RECs transacted on IEX and PXIL were 291932 and 159288 respectively and the weighted average market clearing price of these RECs was ₹1800/MWh in IEX and ₹1850/MWh in PXIL.

Table-1: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (ALL INDIA), NOVEMBER 2019				
Sr. No	Short-term transactions	Volume (MUs)	% to Volume of short-term transactions	% to Total Generation
1	Bilateral	4426.30	46.89	4.73
	(i) Through Traders and PXs	1681.28	17.81	1.80
	(ii) Direct	2745.01	29.08	2.93
2	Through Power Exchanges	3389.25	35.90	3.62
	(i) IEX	3388.84	35.90	3.62
	(ii) PXIL	0.42	0.004	0.0004
3	Through DSM	1624.07	17.20	1.74
	Total	9439.62	-	10.09
	Total Generation	93540.03	-	-

Source: NLDC

Figure-1: Volume of Short-term Transactions of Electricity, November 2019

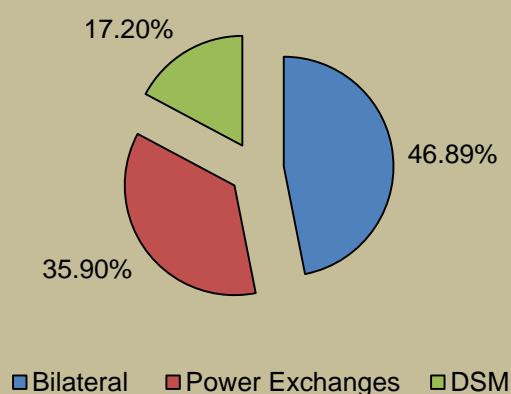
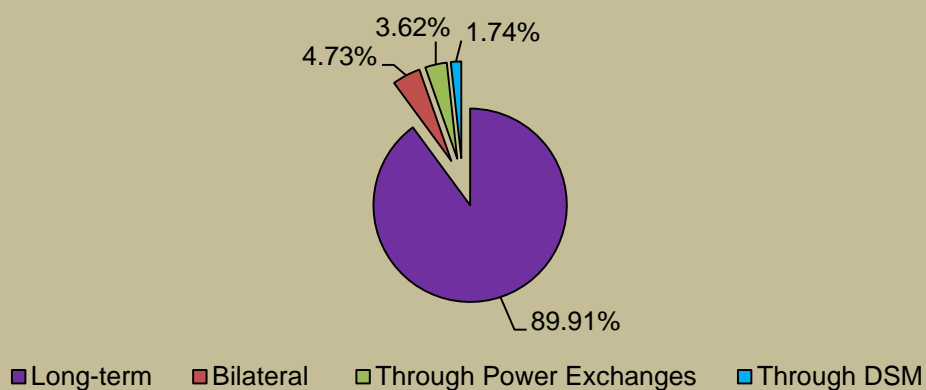


Figure-2: Volume of Various Kinds of Electricity Transactions in Total Electricity Generation, November 2019



**Figure-3: Volume of Short-term Transactions of Electricity,
November 2019 (Day-wise)**

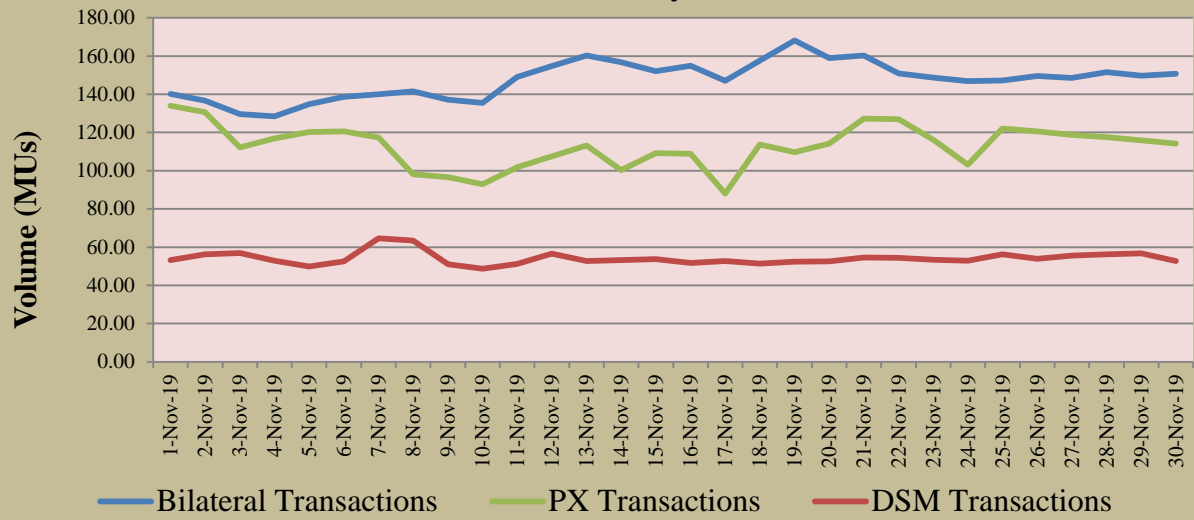


Table-2: PERCENTAGE SHARE OF ELECTRICITY TRANSACTED BY TRADING LICENSEES, NOVEMBER 2019			
Sr. No	Name of the Trading Licensee	% Share in total Volume transacted by Trading Licensees	Herfindahl-Hirschman Index
1	PTC India Ltd.	28.12	0.0791
2	Adani Enterprises Ltd.	15.53	0.0241
3	Manikaran Power Ltd.	11.95	0.0143
4	Kreate Energy (I) Pvt. Ltd.	9.02	0.0081
5	Tata Power Trading Company (P) Ltd.	8.87	0.0079
6	Arunachal Pradesh Power Corporation (P) Ltd	6.56	0.0043
7	Jaiprakash Associates Ltd.	5.66	0.0032
8	GMR Energy Trading Ltd.	2.81	0.0008
9	NHPC Limited	2.73	0.0007
10	NTPC Vidyut Vyapar Nigam Ltd.	2.46	0.0006
11	Knowledge Infrastructure Systems (P) Ltd	2.20	0.0005
12	Instinct Infra & Power Ltd.	0.96	0.0001
13	JSW Power Trading Company Ltd	0.70	0.0000
14	National Energy Trading & Services Ltd.	0.69	0.0000
15	Statkraft Markets Pvt. Ltd.	0.50	0.0000
16	RPG Power Trading Company Ltd.	0.32	0.0000
17	Shree Cement Ltd.	0.24	0.0000
18	Gita Power & Infrastructure Private Limited	0.22	0.0000
19	Customized Energy Solutions India (P) Ltd.	0.20	0.0000
20	Essar Electric Power Development Corp. Ltd.	0.14	0.0000
21	IPCL Power Trading Pvt. Ltd.	0.06	0.0000
22	Phillip Commodities India (P) Ltd.	0.06	0.0000
23	Abja Power Private Limited	0.02	0.0000
24	NLC India Ltd.	0.00	0.0000
TOTAL		100.00%	0.1438
Top 5 trading licensees		73.48%	
<i>Note 1: Volume of electricity transacted by the trading licensees includes bilateral transactions (inter-state & intra-state) and the transactions undertaken through power exchanges.</i>			
<i>Note 2: Volume of electricity transacted by Global Energy Ltd is not included.</i>			
<i>Source: Information submitted by trading licensees</i>			

Figure 4: Percentage Share of Electricity Transacted by Trading Licensees, November 2019

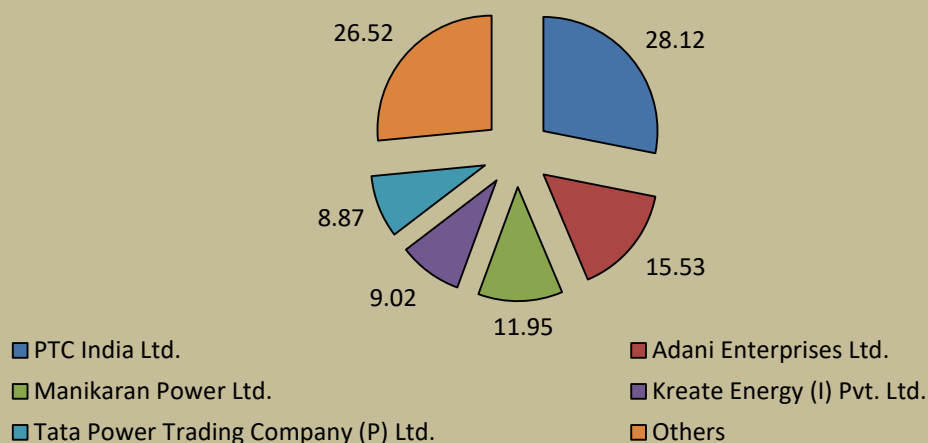


Table-3: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS, NOVEMBER 2019		
Sr.No	Item	Sale Price of Traders (₹/kWh)
1	Minimum	2.98
2	Maximum	5.50
3	Weighted Average	3.61

Source: Information submitted by trading licensees

Table-4: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS (TIME-WISE), NOVEMBER 2019		
Sr.No	Period of Trade	Sale Price of Traders (₹/kWh)
1	RTC	3.68
2	PEAK	3.82
3	OFF PEAK	3.51

Source: Information submitted by trading licensees

Table-5: PRICE OF ELECTRICITY TRANSACTED THROUGH POWER EXCHANGES, NOVEMBER 2019			
Sr.No	ACP	Price in IEX (₹/kWh)	Price in PXIL (₹/kWh)
1	Minimum	1.80	2.91
2	Maximum	7.93	3.15
3	Weighted Average	2.94	3.02

Source: Information submitted by IEX and PXIL

Table-6: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF IEX, NOVEMBER 2019			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	28.67	3.81
2	Day Ahead Contingency Contracts	29.24	3.15
3	Daily Contracts	267.82	3.59
4	Weekly Contracts	110.40	3.08
	Total	436.13	3.45

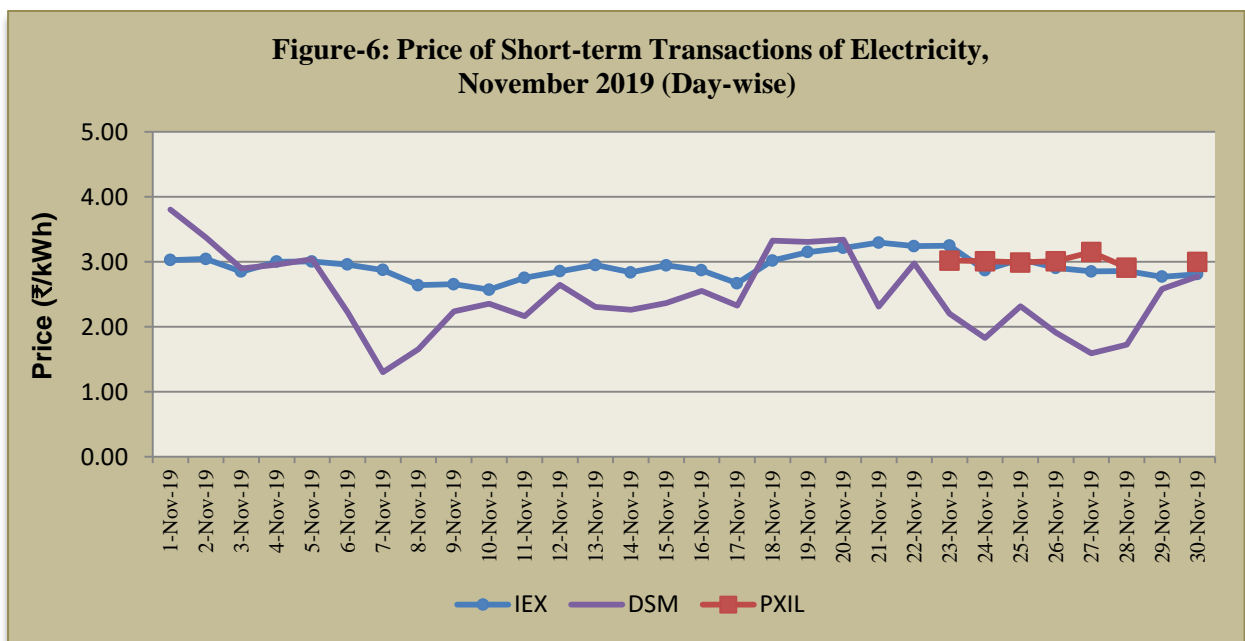
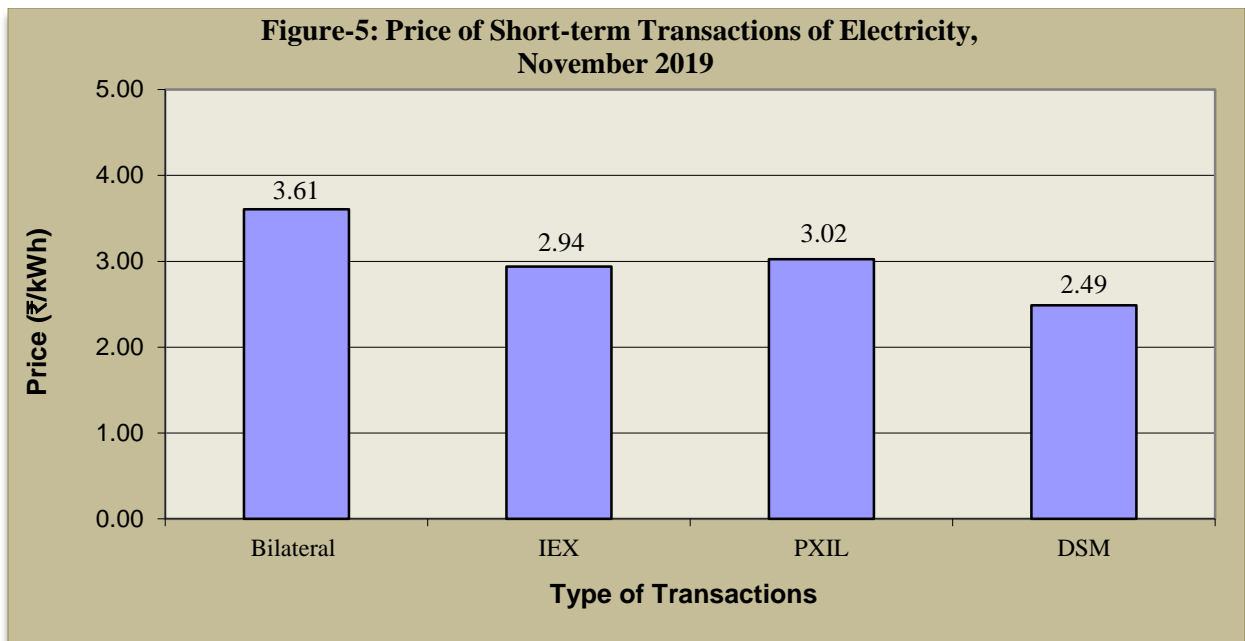
Source: IEX

Table-7: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF PXIL, NOVEMBER 2019			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	40.41	3.38
2	Any Day(s) Contracts	36.75	3.11
3	Weekly Contracts	54.00	3.11
	Total	131.16	3.19

Source: PXIL

Table-8: PRICE OF ELECTRICITY TRANSACTED THROUGH DSM, NOVEMBER 2019		
Sr.No	Item	Price in All India Grid (₹/kWh)
1	Minimum	0.00
2	Maximum	8.00
3	Average	2.49

Source: NLDC



Note: In PXIL, transactions were recorded only on 23rd–28th and 30th November 2019

Table-9: VOLUME OF ELECTRICITY SOLD THROUGH BILATERAL, NOVEMBER 2019

Name of the Entity	Volume of Sale (MUs)	% of Volume
PUNJAB	688.31	15.40
GUJARAT	495.24	11.08
GMR CHATTISGARH	440.03	9.85
IL&FS	324.56	7.26
DELHI	258.53	5.78
WEST BENGAL	241.62	5.41
CHHATTISGARH	226.50	5.07
KSK MAHANADI	185.82	4.16
UTTAR PRADESH	178.71	4.00
ESSAR POWER	176.70	3.95
DVC	143.95	3.22
THERMAL POWERTECH	142.62	3.19
ODISHA	117.21	2.62
SKS POWER	112.21	2.51
HARYANA	94.80	2.12
MB POWER	86.75	1.94
ADHUNIK POWER LTD	82.39	1.84
DB POWER	71.15	1.59
JINDAL POWER	54.82	1.23
HIMACHAL PRADESH	54.29	1.21
RAJASTHAN	43.32	0.97
DAGACHU	36.00	0.81
KARNATAKA	35.86	0.80
ONGC PALATANA	32.22	0.72
J & K	30.95	0.69
BIHAR	19.96	0.45
TELANGANA	16.68	0.37
CHUZACHEN HEP	16.07	0.36
ANDHRA PRADESH	10.37	0.23
MP	7.68	0.17
JAYPEE NIGRIE	6.79	0.15
COASTGEN	5.89	0.13
MAHARASHTRA	5.58	0.12
LANKO_AMK	5.12	0.11
NTPC STATIONS-NER	4.09	0.09
TAMIL NADU	3.51	0.08
JHABUA POWER_MP	3.29	0.07
GMR KAMALANGA	2.22	0.05
BALCO	2.11	0.05
MEGHALAYA	1.84	0.04
DIKCHU HEP	1.20	0.03
NAGALAND	0.86	0.02
ACBIL	0.73	0.02
JHARKHAND	0.47	0.01
BRBCL,NABINAGAR	0.08	0.002
DHARIWAL POWER	0.02	0.0004
Total	4469.11	100.00
Volume Sold by top 5 Regional Entities	2206.66	49.38

Table-10: VOLUME OF ELECTRICITY PURCHASED THROUGH BILATERAL, NOVEMBER 2019		
Name of the Entity	Volume of Purchase (MUs)	% of Volume
MP	1004.31	22.69
ANDHRA PRADESH	515.15	11.64
TAMIL NADU	506.74	11.45
GUJARAT	416.40	9.41
MAHARASHTRA	383.97	8.67
HIMACHAL PRADESH	292.55	6.61
WEST BENGAL	254.98	5.76
HARYANA	234.41	5.30
ESSAR STEEL	175.83	3.97
UTTARAKHAND	111.18	2.51
UTTAR PRADESH	90.72	2.05
JHARKHAND	86.84	1.96
HVDC PUS	78.56	1.77
RAJASTHAN	64.23	1.45
CHHATTISGARH	46.96	1.06
ASSAM	35.72	0.81
GOA	33.69	0.76
DADRA & NAGAR HAVELI	23.27	0.53
DELHI	21.82	0.49
TELANGANA	14.15	0.32
BIHAR	13.07	0.30
KERALA	10.56	0.24
BANGLADESH	7.44	0.17
ODISHA	3.68	0.08
KARNATAKA	0.07	0.002
TOTAL	4426.30	100.00
Volume Purchased by top 5 Regional Entities	2826.58	63.86

Table-11: VOLUME OF ELECTRICITY SOLD THROUGH POWER EXCHANGES, NOVEMBER 2019		
Name of the Entity	Volume of Sale (MUs)	% of Volume
MP	287.74	8.49
KARNATAKA	277.91	8.20
TEESTA STG3	218.04	6.43
ASSAM	197.14	5.82
ODISHA	184.14	5.43
GUJARAT	177.82	5.25
SEBICORP	153.21	4.52
RAJASTHAN	149.44	4.41
BIHAR	146.68	4.33
JAYPEE NIGRIE	136.27	4.02
NLC	112.61	3.32
THERMAL POWERTECH	104.53	3.08
GMR CHATTISGARH	100.72	2.97
HIMACHAL PRADESH	94.41	2.79
CHHATTISGARH	84.56	2.49
DELHI	82.65	2.44
MB POWER	81.98	2.42
TELANGANA	66.16	1.95
DB POWER	59.72	1.76
SPECTRUM	57.43	1.69
HARYANA	44.44	1.31
COASTGEN	39.91	1.18
ACBIL	38.33	1.13
MAHARASHTRA	28.55	0.84
TASHIDENG HEP	27.96	0.82
UTTAR PRADESH	27.49	0.81
JORETHANG	27.37	0.81
MARUTI COAL	26.57	0.78
TRIPURA	26.55	0.78
JHARKHAND	26.16	0.77
MIZORAM	22.01	0.65
AD HYDRO	21.04	0.62
SIKKIM	20.08	0.59
CHANDIGARH	19.75	0.58
KARCHAM WANGTOO	19.72	0.58
ANDHRA PRADESH	19.62	0.58
WEST BENGAL	18.66	0.55
NTPC STATIONS-WR	17.46	0.52
JHABUA POWER_MP	17.22	0.51
SAINJ HEP	17.11	0.50
JITPL	16.94	0.50
DIKCHU HEP	15.53	0.46
UTTARAKHAND	13.91	0.41
TAMIL NADU	10.05	0.30
GOA	8.87	0.26
NTPC STATIONS-SR	6.16	0.18
NTPC STATIONS-NER	5.53	0.16
ESSAR POWER	4.54	0.13

MANIPUR	4.47	0.13
PUNJAB	3.03	0.09
ARUNACHAL PRADESH	2.64	0.08
CHUZACHEN HEP	2.53	0.07
BRBCL,NABINAGAR	2.07	0.06
ONGC PALATANA	1.92	0.06
MEGHALAYA	1.79	0.05
KERALA	1.49	0.04
IL&FS	1.44	0.04
MALANA	1.27	0.04
NTPC STATIONS-NR	1.01	0.03
LANCO BUDHIL	0.98	0.03
J & K	0.90	0.03
DVC	0.78	0.02
GMR KAMALANGA	0.70	0.02
SKS POWER	0.68	0.02
NAGALAND	0.37	0.01
JINDAL POWER	0.26	0.01
BALCO	0.08	0.002
DHARIWAL POWER	0.05	0.001
RGPPL (DABHOL)	0.05	0.001
EMCO	0.03	0.001
NTPL	0.02	0.001
NTPC STATIONS-ER	0.01	0.0003
Total	3389.25	100.00
Volume sold by top 5 Regional Entities	1164.98	34.37

Table-12: VOLUME OF ELECTRICITY PURCHASED THROUGH POWER EXCHANGES, NOVEMBER 2019		
Name of the Entity	Volume of Purchase (MUs)	% of Volume
TAMIL NADU	387.98	11.45
GUJARAT	341.46	10.07
ANDHRA PRADESH	299.02	8.82
TELANGANA	287.37	8.48
MAHARASHTRA	267.09	7.88
DELHI	179.02	5.28
WEST BENGAL	170.37	5.03
RAJASTHAN	153.77	4.54
J & K	152.11	4.49
HARYANA	151.24	4.46
DADRA & NAGAR HAVELI	117.60	3.47
KARNATAKA	115.26	3.40
UTTARAKHAND	110.42	3.26
UTTAR PRADESH	86.98	2.57
CHHATTISGARH	76.87	2.27
BIHAR	73.97	2.18
DVC	62.30	1.84
ODISHA	60.61	1.79
DAMAN AND DIU	51.62	1.52
PUNJAB	45.02	1.33
KERALA	41.53	1.23
HIMACHAL PRADESH	40.38	1.19
JHARKHAND	30.64	0.90
GOA	24.61	0.73
ASSAM	24.43	0.72
MEGHALAYA	22.61	0.67
MP	7.78	0.23
NAGALAND	3.06	0.09
CHANDIGARH	2.12	0.06
ESSAR STEEL	1.41	0.04
MANIPUR	0.61	0.02
TOTAL	3389.25	100.00
Volume purchased by top 5 Regional Entities	1582.92	46.70

Table-13: VOLUME OF ELECTRICITY UNDER DRAWAL (EXPORTED) THROUGH DSM, NOVEMBER 2019		
Name of the Entity	Volume of Under drawal (MUs)	% of Volume
RAJASTHAN	86.04	5.54
J & K	73.87	4.75
MP	70.39	4.53
CHUKHA HEP	66.12	4.26
GUJARAT	61.88	3.98
BIHAR	61.42	3.95
NHPC STATIONS	59.62	3.84
NTPC STATIONS-NR	58.05	3.74
SASAN UMPP	54.89	3.53
UTTAR PRADESH	54.06	3.48
KARNATAKA	53.38	3.44
NTPC STATIONS-WR	52.73	3.39
PUNJAB	50.05	3.22
TELANGANA	47.91	3.08
MAHARASHTRA	44.43	2.86
NLC	38.07	2.45
TAMIL NADU	37.57	2.42
HARYANA	33.87	2.18
NTPC STATIONS-ER	32.70	2.10
ANDHRA PRADESH	30.78	1.98
DVC	25.93	1.67
ODISHA	23.95	1.54
NTPC STATIONS-SR	21.71	1.40
ESSAR STEEL	21.47	1.38
DELHI	21.46	1.38
HIMACHAL PRADESH	19.28	1.24
JHARKHAND	18.77	1.21
CHHATTISGARH	16.20	1.04
TRIPURA	14.03	0.90
WEST BENGAL	13.68	0.88
BBMB	12.47	0.80
RAP C	11.78	0.76
GIWEL_BHUJ	10.74	0.69
RAP B	10.36	0.67
UTTARAKHAND	9.91	0.64
PONDICHERRY	9.67	0.62
GOA	8.69	0.56
OSTRO	8.05	0.52
NEEPCO STATIONS	7.35	0.47
RENEW_BHACHAU	5.91	0.38
BRBCL,NABINAGAR	5.90	0.38
TEESTA HEP	5.89	0.38
NTPC STATIONS-NER	5.77	0.37
NJPC	5.52	0.36
CGPL	5.45	0.35

MAITHON POWER LTD	5.45	0.35
BANGLADESH	5.44	0.35
ASSAM	5.24	0.34
RAIL	5.22	0.34
DADRA & NAGAR HAVELI	4.73	0.30
JAYPEE NIGRIE	4.54	0.29
RAMPUR HEP	4.51	0.29
EMCO	4.46	0.29
MB POWER	4.37	0.28
KARCHAM WANGTOO	4.12	0.27
SB_SLR	3.86	0.25
MANGDECHU HEP	3.82	0.25
MAHOBA_SLR	3.49	0.22
AZURE_SLR	3.45	0.22
MIZORAM	3.44	0.22
SIKKIM	3.27	0.21
IGSTPS	3.25	0.21
ACBIL	3.21	0.21
KERALA	3.13	0.20
ARUNACHAL PRADESH	2.93	0.19
COASTGEN	2.91	0.19
NEPAL(NVVN)	2.86	0.18
RGPP (DABHOL)	2.85	0.18
NAGALAND	2.68	0.17
TEHRI	2.66	0.17
LANKO_AMK	2.56	0.16
NPGC	2.44	0.16
TATA_SLR	2.43	0.16
CHANDIGARH	2.32	0.15
SEMBICORP	2.32	0.15
ACME_RUMS	2.28	0.15
GMR CHATTISGARH	2.24	0.14
ARINSUM_RUMS	2.12	0.14
THERMAL POWERTECH	2.06	0.13
AZURE34_SLR	1.96	0.13
MEGHALAYA	1.88	0.12
NTPL	1.84	0.12
LOKTAK	1.75	0.11
RANGANADI HEP	1.71	0.11
KOTESHWAR	1.63	0.10
JINDAL POWER	1.61	0.10
MAHINDRA_RUMS	1.61	0.10
INOX_BHUJ	1.55	0.10
AGEMPL BHUJ	1.52	0.10
MANIPUR	1.39	0.09
NAPP	1.37	0.09
KISHANGANGA HEP	1.35	0.09
ACME_SLR	1.30	0.08
KSK MAHANADI	1.24	0.08

AD HYDRO	1.15	0.07
RANGIT HEP	1.14	0.07
SAINJ HEP	1.13	0.07
JINDAL STAGE-II	1.11	0.07
GMR KAMALANGA	1.07	0.07
DB POWER	1.06	0.07
RKM POWER	1.06	0.07
ESSAR POWER	1.01	0.06
TRN ENERGY	1.01	0.06
NETCL VALLUR	1.01	0.06
TEESTA STG3	1.00	0.06
DIKCHU HEP	0.94	0.06
JHABUA POWER_MP	0.94	0.06
DAMAN AND DIU	0.86	0.06
MTPS II	0.84	0.05
ONGC PALATANA	0.77	0.05
NSPCL	0.75	0.05
JITPL	0.74	0.05
SKS POWER	0.70	0.05
KURICHU HEP	0.68	0.04
DOYANG HEP	0.65	0.04
CHUZACHEN HEP	0.63	0.04
BALCO	0.59	0.04
ADHUNIK POWER LTD	0.59	0.04
JORETHANG	0.53	0.03
PARE HEP	0.48	0.03
TASHIDENG HEP	0.48	0.03
LANCO BUDHIL	0.48	0.03
DHARIWAL POWER	0.43	0.03
RENEW_SLR	0.40	0.03
HVDC CHAMPA	0.23	0.01
BARC	0.21	0.01
IL&FS	0.17	0.01
HVDC ALPD	0.16	0.01
BHADRAVATHI HVDC	0.12	0.01
MALANA	0.11	0.007
VINDHYACHAL HVDC	0.10	0.006
NFF	0.08	0.005
SHREE CEMENT	0.08	0.005
HVDC PUS	0.08	0.005
TALA HEP	0.02	0.001
DCPP	0.01	0.001
DAGACHU	0.0001	0.00001
Total	1553.68	100.00
Volume Exported by top 5 Regional Entities	358.31	23.06

Table-14: VOLUME OF ELECTRICITY OVER DRAWAL (IMPORTED) THROUGH DSM, NOVEMBER 2019		
Name of the Entity	Volume of Over drawal (MUs)	% of Volume
TALA HEP	93.57	5.52
NTPC STATIONS-WR	91.99	5.43
TAMIL NADU	75.99	4.48
RAJASTHAN	71.20	4.20
NTPC STATIONS-NR	60.86	3.59
WEST BENGAL	59.12	3.49
UTTAR PRADESH	55.12	3.25
KARNATAKA	54.12	3.19
MAHARASHTRA	49.37	2.91
GUJARAT	48.72	2.88
NTPC STATIONS-ER	45.84	2.71
HARYANA	40.92	2.41
KERALA	40.68	2.40
TELANGANA	39.04	2.30
ANDHRA PRADESH	36.53	2.16
CHHATTISGARH	36.37	2.15
NTPC STATIONS-SR	36.12	2.13
CGPL	34.22	2.02
DVC	30.42	1.80
MP	30.13	1.78
BIHAR	29.47	1.74
UTTARAKHAND	28.99	1.71
RGPPL (DABHOL)	23.63	1.39
ODISHA	21.93	1.29
ESSAR STEEL	21.41	1.26
MB POWER	21.03	1.24
NLC	20.92	1.23
RAP B	20.23	1.19
DB POWER	19.13	1.13
GMR CHATTISGARH	18.84	1.11
HIMACHAL PRADESH	18.68	1.10
NHPC STATIONS	17.38	1.03
DAMAN AND DIU	17.10	1.01
ASSAM	14.07	0.83
JHABUA POWER_MP	13.36	0.79
DELHI	12.47	0.74
BALCO	11.68	0.69
NETCL VALLUR	11.23	0.66
J & K	11.16	0.66
SEMBCORP	10.86	0.64
PUNJAB	10.78	0.64
JHARKHAND	10.17	0.60
DAGACHU	9.82	0.58
NAPP	9.43	0.56
GIWEL_BHUJ	8.65	0.51
KURICHU HEP	8.30	0.49
EMCO	7.90	0.47
TEESTA STG3	7.88	0.47
NTPC STATIONS-NER	7.86	0.46

CHANDIGARH	7.66	0.45
IL&FS	7.24	0.43
NPGC	6.91	0.41
BANGLADESH	6.75	0.40
NEPAL(NVVN)	6.52	0.38
OSTRO	6.39	0.38
MEGHALAYA	6.25	0.37
MTPS II	5.58	0.33
RENEW_BHACHAU	5.50	0.32
ARUNACHAL PRADESH	5.23	0.31
ADHUNIK POWER LTD	5.05	0.30
JINDAL STAGE-II	4.99	0.29
BRBCL,NABINAGAR	4.85	0.29
AZURE_SLR	4.71	0.28
SIKKIM	4.66	0.28
KARCHAM WANGTOO	4.52	0.27
SB_SLR	4.30	0.25
THERMAL POWERTECH	3.95	0.23
GOA	3.89	0.23
JITPL	3.76	0.22
MANGDECHU HEP	3.72	0.22
MANIPUR	3.70	0.22
NTPL	3.65	0.22
MAHOBIA_SLR	3.62	0.21
MAHINDRA_RUMS	3.61	0.21
AZURE34_SLR	3.41	0.20
NJPC	3.38	0.20
IGSTPS	3.32	0.20
MAITHON POWER LTD	3.30	0.19
RAIL	3.14	0.19
ACME_SLR	2.98	0.18
KAPP 3&4	2.88	0.17
SKS POWER	2.82	0.17
TATA_SLR	2.82	0.17
GMR KAMALANGA	2.73	0.16
BBMB	2.69	0.16
MIZORAM	2.67	0.16
DADRA & NAGAR HAVELI	2.62	0.15
NFF	2.52	0.15
JORETHANG	2.40	0.14
ESSAR POWER	2.33	0.14
ARINSUM_RUMS	2.28	0.13
ACME_RUMS	2.20	0.13
COASTGEN	2.19	0.13
PONDICHERRY	2.17	0.13
AGEMPL BHUJ	1.92	0.11
ACBIL	1.87	0.11
NSPCL	1.87	0.11
KSK MAHANADI	1.84	0.11
RAP C	1.83	0.11
TRIPURA	1.66	0.10
RKM POWER	1.64	0.10
INOX_BHUJ	1.60	0.09

TEHRI	1.54	0.09
KOTESHWAR	1.50	0.09
JINDAL POWER	1.34	0.08
DGEN MEGA POWER	1.23	0.07
TASHIDENG HEP	1.14	0.07
RANGANADI HEP	1.11	0.07
KISHANGANGA HEP	1.09	0.06
RENEW_SLR	1.06	0.06
DHARIWAL POWER	0.91	0.05
JAYPEE NIGRIE	0.89	0.05
NEEPCO STATIONS	0.86	0.05
KORBA WEST POWER	0.85	0.05
NAGALAND	0.84	0.05
ONGC PALATANA	0.67	0.04
DIKCHU HEP	0.66	0.04
AD HYDRO	0.64	0.04
MEENAKSHI	0.64	0.04
HVDC CHAMPA	0.60	0.04
RAMPUR HEP	0.60	0.04
LANKO KONDAPALLI	0.60	0.04
SASAN UMPP	0.57	0.03
TRN ENERGY	0.55	0.03
LANKO_AMK	0.47	0.03
NEP	0.43	0.03
SAINJ HEP	0.41	0.02
CHUZACHEN HEP	0.39	0.02
SIMHAPURI	0.39	0.02
SHREE CEMENT	0.29	0.02
RANGIT HEP	0.28	0.02
LOKTAK	0.24	0.01
MALANA	0.24	0.01
DOYANG HEP	0.23	0.01
TEESTA HEP	0.11	0.01
PARE HEP	0.10	0.01
LANCO BUDHIL	0.08	0.005
BARC	0.05	0.003
BHADRAVATHI HVDC	0.02	0.001
HVDC ALPD	0.02	0.001
HVDC PUS	0.02	0.001
CHUKHA HEP	0.01	0.001
DCPP	0.01	0.001
VINDHYACHAL HVDC	0.0001	0.00001
TOTAL	1694.46	100.00
Volume Imported by top 5 Regional Entities	393.62	23.23

Table-15: TOTAL VOLUME OF NET SHORT-TERM TRANSACTIONS OF ELECTRICITY (REGIONAL ENTITY-WISE), NOVEMBER 2019		
S. No.	Name of the Entity	Total volume of net short-term transactions of electricity*
1	TAMIL NADU	919.58
2	ANDHRA PRADESH	789.94
3	MP	676.41
4	MAHARASHTRA	621.86
5	HARYANA	253.45
6	UTTARAKHAND	226.76
7	WEST BENGAL	210.50
8	TELANGANA	209.80
9	HIMACHAL PRADESH	183.64
10	ESSAR STEEL	177.18
11	DADRA & NAGAR HAVELI	138.76
12	TALA HEP	93.56
13	KERALA	88.15
14	JHARKHAND	82.25
15	HVDC PUS	78.49
16	GUJARAT	71.65
17	DAMAN AND DIU	67.87
18	J & K	57.56
19	GOA	44.63
20	CGPL	28.77
21	MEGHALAYA	23.37
22	NTPC STATIONS-WR	21.81
23	RGPL (DABHOL)	20.73
24	NTPC STATIONS-ER	13.13
25	RAJASTHAN	10.40
26	NETCL VALLUR	10.22
27	RAP B	9.87
28	BALCO	8.90
29	BANGLADESH	8.75
30	NTPC STATIONS-SR	8.25
31	NAPP	8.06
32	KURICHU HEP	7.62
33	MTPS II	4.74
34	NPGC	4.47
35	JINDAL STAGE-II	3.88
36	NEPAL(NVVN)	3.66
37	EMCO	3.41
38	KAPP 3&4	2.88
39	NFF	2.43
40	MAHINDRA_RUMS	2.00
41	NTPC STATIONS-NR	1.81
42	NTPL	1.79
43	ACME_SLR	1.68
44	AZURE34_SLR	1.45
45	AZURE_SLR	1.26
46	DGEN MEGA POWER	1.23
47	NSPCL	1.12
48	KORBA WEST POWER	0.85

49	RENEW_SLR	0.66
50	MEENAKSHI	0.64
51	LANKO KONDAPALLI	0.60
52	RKM POWER	0.58
53	SB_SLR	0.43
54	NEP	0.43
55	DHARIWAL POWER	0.41
56	AGEMPL BHUJ	0.40
57	SIMHAPURI	0.39
58	TATA_SLR	0.38
59	HVDC CHAMPA	0.37
60	SHREE CEMENT	0.20
61	ARINSUM_RUMS	0.16
62	MAHOBA_SLR	0.13
63	IGSTPS	0.07
64	INOX_BHUJ	0.05
65	DCPP	0.002
66	NAGALAND	-0.001
67	ACME_RUMS	-0.08
68	VINDHYACHAL HVDC	-0.10
69	BHADRAVATHI HVDC	-0.10
70	MANGDECHU HEP	-0.11
71	KOTESHWAR	-0.12
72	HVDC ALPD	-0.14
73	BARC	-0.16
74	KISHANGANGA HEP	-0.26
75	ARUNACHAL PRADESH	-0.34
76	PARE HEP	-0.38
77	RENEW_BHACHAU	-0.41
78	DOYANG HEP	-0.42
79	TRN ENERGY	-0.46
80	RANGANADI HEP	-0.60
81	RANGIT HEP	-0.86
82	TEHRI	-1.12
83	MALANA	-1.14
84	GMR KAMALANGA	-1.26
85	LANCO BUDHIL	-1.38
86	LOKTAK	-1.50
87	MANIPUR	-1.56
88	OSTRO	-1.66
89	RAIL	-2.09
90	GIWEL_BHUJ	-2.09
91	NJPC	-2.14
92	MAITHON POWER LTD	-2.15
93	BRBCL,NABINAGAR	-3.21
94	RAMPUR HEP	-3.92
95	TEESTA HEP	-5.78
96	NEEPCO STATIONS	-6.49
97	LANKO_AMK	-7.21
98	PONDICHERRY	-7.49
99	NTPC STATIONS-NER	-7.53
100	JHABUA POWER_MP	-8.08

101	BBMB	-9.78
102	RAP C	-9.94
103	CHANDIGARH	-12.28
104	JITPL	-13.91
105	DIKCHU HEP	-17.01
106	SAINJ HEP	-17.84
107	SIKKIM	-18.69
108	CHUZACHEN HEP	-18.84
109	KARCHAM WANGTOO	-19.32
110	AD HYDRO	-21.54
111	MIZORAM	-22.78
112	JORETHANG	-25.50
113	DAGACHU	-26.18
114	MARUTI COAL	-26.57
115	TASHIDENG HEP	-27.30
116	UTTAR PRADESH	-27.44
117	ONGC PALATANA	-34.25
118	TRIPURA	-38.92
119	ACBIL	-40.40
120	NHPC STATIONS	-42.25
121	COASTGEN	-46.53
122	SASAN UMPP	-54.32
123	JINDAL POWER	-55.36
124	SPECTRUM	-57.43
125	CHUKHA HEP	-66.11
126	ADHUNIK POWER LTD	-77.93
127	DVC	-77.95
128	SKS POWER	-110.77
129	BIHAR	-111.54
130	DB POWER	-112.79
131	ASSAM	-128.17
132	NLC	-129.75
133	SEMBCORP	-144.67
134	JAYPEE NIGRIE	-146.70
135	DELHI	-149.32
136	MB POWER	-152.07
137	CHHATTISGARH	-167.06
138	ESSAR POWER	-179.92
139	KSK MAHANADI	-185.21
140	KARNATAKA	-197.70
141	TEESTA STG3	-211.16
142	ODISHA	-239.09
143	THERMAL POWERTECH	-245.25
144	IL&FS	-318.93
145	GMR CHATTISGARH	-524.15
146	PUNJAB	-685.59
* Total volume of net short-term transactions of electricity includes net of transactions of electricity through bilateral, power exchange and UI		
(-) indicates sale and (+) indicates purchase		

Table-16: DETAILS OF CONGESTION IN POWER EXCHANGES, NOVEMBER 2019			
	Details of Congestion	IEX	PXIL
A	Unconstrained Cleared Volume (MUs)	3402.58	0.42
B	Actual Cleared Volume and hence scheduled (MUs)	3388.84	0.42
C	Volume of electricity that could not be cleared and hence not scheduled because of congestion (MUs)*	13.75	0.00
D	Volume of electricity that could not be cleared and hence not scheduled because of reasons other than congestion (MUs)	0.00	0.00
E	Volume of electricity that could not be cleared as % to Unconstrained Cleared Volume	0.40%	0.00%
F	Percentage of the time congestion occurred during the month (Number of hours congestion occurred/Total number of hours in the month)	1.39%	0.00%
G	Congestion occurrence (%) time block wise		
	0.00 - 6.00 hours	0.00%	0.00%
	6.00 - 12.00 hours	0.00%	0.00%
	12.00 - 18.00 hours	5.00%	0.00%
	18.00 - 24.00 hours	95.00%	0.00%
<i>*This power would have been scheduled had there been no congestion</i>			
<i>Source: IEX & PXIL & NLDC</i>			

Table-17: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY IN INDIA (DAY-WISE) (MUs), NOVEMBER 2019						
Date	Bilateral		Power Exchange (Area Clearing Volume[#] of Day Ahead Market)		Deviation Settlement (Over Drawl + Under Generation)	Total Electricity Generation (MU) as given at CEA Website*
	Through Traders and PXs**	Direct	IEX	PXIL		
1-Nov-19	55.58	84.63	133.97	0.00	53.22	2986.68
2-Nov-19	54.21	82.41	130.61	0.00	56.26	3036.35
3-Nov-19	51.35	78.36	112.15	0.00	56.90	2951.32
4-Nov-19	43.90	84.56	116.83	0.00	52.83	3112.86
5-Nov-19	48.03	86.78	120.32	0.00	49.83	3179.17
6-Nov-19	47.53	91.07	120.66	0.00	52.50	3213.68
7-Nov-19	48.06	91.95	117.39	0.00	64.67	3090.98
8-Nov-19	47.06	94.53	98.17	0.00	63.47	2996.09
9-Nov-19	46.79	90.33	96.62	0.00	51.05	2988.94
10-Nov-19	44.77	90.77	93.00	0.00	48.69	2928.24
11-Nov-19	53.78	95.27	101.89	0.00	51.25	3105.67
12-Nov-19	55.15	99.55	107.55	0.00	56.59	3151.89
13-Nov-19	60.76	99.47	113.16	0.00	52.73	3172.85
14-Nov-19	57.18	99.58	100.32	0.00	53.16	3175.39
15-Nov-19	52.54	99.48	109.25	0.00	53.68	3178.49
16-Nov-19	57.91	97.03	108.86	0.00	51.70	3150.76
17-Nov-19	54.09	92.96	88.06	0.00	52.75	2991.64
18-Nov-19	63.08	94.56	113.73	0.00	51.45	3175.92
19-Nov-19	69.59	98.62	109.65	0.00	52.32	3262.31
20-Nov-19	66.21	92.75	114.27	0.00	52.52	3256.95
21-Nov-19	65.78	94.56	127.37	0.00	54.51	3217.78
22-Nov-19	62.78	88.07	126.94	0.00	54.37	3233.06
23-Nov-19	64.06	84.61	116.14	0.09	53.35	3141.61
24-Nov-19	63.45	83.41	103.02	0.08	52.97	3093.29
25-Nov-19	59.39	87.80	121.97	0.04	56.16	3161.95
26-Nov-19	58.19	91.39	120.54	0.07	53.93	3162.07
27-Nov-19	56.83	91.67	118.72	0.06	55.50	3124.47
28-Nov-19	58.44	93.20	117.52	0.03	56.27	3085.13
29-Nov-19	56.91	92.85	115.92	0.00	56.72	3120.45
30-Nov-19	57.90	92.79	114.23	0.05	52.72	3094.04
Total	1681.28	2745.01	3388.84	0.42	1624.07	93540.03
Source: NLDC						
* 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.						
# Area Clearing Volume represents the scheduled volume of all the bid areas.						

Table-18: PRICE OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (DAY-WISE)(₹/kWh), NOVEMBER 2019									
Market Segment	Day ahead market of IEX			Day ahead market of PXIL			Under Drawl/Over Drawl from the Grid (DSM)		
Date	Minimum ACP	Maximum ACP	Weighted Average Price*	Minimum ACP	Maximum ACP	Weighted Average Price*	All India Grid		
							Minimum Price	Maximum Price	Average Price**
1-Nov-19	2.30	4.42	3.03	-	-	0.00	0.00	8.00	3.80
2-Nov-19	2.50	4.50	3.04	-	-	0.00	0.00	8.00	3.37
3-Nov-19	2.35	3.89	2.85	-	-	0.00	0.00	8.00	2.89
4-Nov-19	2.50	4.20	3.00	-	-	0.00	0.00	8.00	2.96
5-Nov-19	2.45	4.26	3.00	-	-	0.00	0.00	8.00	3.04
6-Nov-19	2.45	4.20	2.96	-	-	0.00	0.00	6.41	2.22
7-Nov-19	2.00	3.90	2.87	-	-	0.00	0.00	4.11	1.30
8-Nov-19	1.80	3.46	2.64	-	-	0.00	0.00	5.96	1.65
9-Nov-19	1.97	3.62	2.66	-	-	0.00	0.00	5.31	2.24
10-Nov-19	2.33	3.23	2.57	-	-	0.00	0.00	6.64	2.35
11-Nov-19	2.00	4.00	2.75	-	-	0.00	0.00	5.01	2.16
12-Nov-19	2.20	4.15	2.86	-	-	0.00	0.00	6.70	2.64
13-Nov-19	2.40	4.50	2.95	-	-	0.00	0.00	7.36	2.31
14-Nov-19	2.00	4.20	2.84	-	-	0.00	0.00	7.02	2.26
15-Nov-19	2.35	4.26	2.95	-	-	0.00	0.00	7.04	2.36
16-Nov-19	2.40	4.20	2.87	-	-	0.00	0.00	8.00	2.55
17-Nov-19	2.20	3.19	2.67	-	-	0.00	0.00	6.00	2.33
18-Nov-19	2.18	4.38	3.02	-	-	0.00	0.59	8.00	3.33
19-Nov-19	2.27	5.14	3.15	-	-	0.00	0.00	7.69	3.31
20-Nov-19	2.50	5.90	3.21	-	-	0.00	0.00	8.00	3.34
21-Nov-19	2.76	6.66	3.30	-	-	0.00	0.00	7.42	2.31
22-Nov-19	2.22	7.43	3.24	-	-	0.00	0.00	6.24	2.98
23-Nov-19	2.00	7.93	3.25	3.02	3.02	3.02	0.00	5.59	2.20
24-Nov-19	2.30	4.00	2.87	3.01	3.01	3.01	0.00	5.73	1.83
25-Nov-19	1.97	4.98	3.04	2.99	2.99	2.99	0.00	8.00	2.32
26-Nov-19	2.00	4.26	2.91	3.01	3.01	3.01	0.00	5.73	1.91
27-Nov-19	2.00	4.30	2.85	3.15	3.15	3.15	0.00	5.37	1.59
28-Nov-19	2.00	4.20	2.86	2.91	2.91	2.91	0.00	4.40	1.73
29-Nov-19	1.98	4.13	2.77	-	-	0.00	0.00	6.67	2.58
30-Nov-19	2.00	3.37	2.81	3.00	3.00	3.00	0.00	6.69	2.77
	1.80[#]	7.93[#]	2.94	2.91[#]	3.15[#]	3.02	0.00[#]	8.00[#]	2.49
Source: Data on price of PX transactions from IEX and PXIL and data on DSM Price from NLDC.									
* 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.									
** Simple average price of DSM of 96 time blocks of 15 minutes each in a day. DSM price includes Ceiling DSM Rate +40% additional DSM charge.									
# Maximum/Minimum in the month									

Table-19: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (REGIONAL ENTITY*-WISE) (MUs), NOVEMBER 2019										
Name of the Entity	Through Bilateral			Through Power Exchange			Through DSM with Regional Grid			Total Net***
	Sale	Purchase	Net**	Sale	Purchase	Net**	Import (Over Drawl)	Export (Under Drawl)	Net**	
PUNJAB	688.31	0.00	-688.31	3.03	45.02	41.99	10.78	50.05	-39.27	-685.59
HARYANA	94.80	234.41	139.61	44.44	151.24	106.80	40.92	33.87	7.05	253.45
RAJASTHAN	43.32	64.23	20.91	149.44	153.77	4.33	71.20	86.04	-14.84	10.40
DELHI	258.53	21.82	-236.70	82.65	179.02	96.37	12.47	21.46	-8.98	-149.32
U P	178.71	90.72	-88.00	27.49	86.98	59.49	55.12	54.06	1.06	-27.44
UTTARAKHAND	0.00	111.18	111.18	13.91	110.42	96.51	28.99	9.91	19.08	226.76
H P	54.29	292.55	238.26	94.41	40.38	-54.03	18.68	19.28	-0.59	183.64
J & K	30.95	0.00	-30.95	0.90	152.11	151.21	11.16	73.87	-62.70	57.56
CHANDIGARH	0.00	0.00	0.00	19.75	2.12	-17.63	7.66	2.32	5.35	-12.28
MP	7.68	1004.31	996.64	287.74	7.78	-279.96	30.13	70.39	-40.26	676.41
MAHARASHTRA	5.58	383.97	378.39	28.55	267.09	238.53	49.37	44.43	4.94	621.86
GUJARAT	495.24	416.40	-78.83	177.82	341.46	163.64	48.72	61.88	-13.17	71.65
CHHATTISGARH	226.50	46.96	-179.54	84.56	76.87	-7.69	36.37	16.20	20.17	-167.06
GOA	0.00	33.69	33.69	8.87	24.61	15.74	3.89	8.69	-4.79	44.63
DAMAN & DIU	0.00	0.00	0.00	0.00	51.62	51.62	17.10	0.86	16.25	67.87
DADRA & NAGAR H	0.00	23.27	23.27	0.00	117.60	117.60	2.62	4.73	-2.11	138.76
ANDHRA P	10.37	515.15	504.78	19.62	299.02	279.40	36.53	30.78	5.75	789.94
KARNATAKA	35.86	0.07	-35.79	277.91	115.26	-162.65	54.12	53.38	0.74	-197.70
KERALA	0.00	10.56	10.56	1.49	41.53	40.03	40.68	3.13	37.56	88.15
TAMIL NADU	3.51	506.74	503.23	10.05	387.98	377.93	75.99	37.57	38.42	919.58
PONDICHERRY	0.00	0.00	0.00	0.00	0.00	0.00	2.17	9.67	-7.49	-7.49
TELANGANA	16.68	14.15	-2.53	66.16	287.37	221.21	39.04	47.91	-8.87	209.80
WEST BENGAL	241.62	254.98	13.36	18.66	170.37	151.71	59.12	13.68	45.44	210.50
ODISHA	117.21	3.68	-113.53	184.14	60.61	-123.53	21.93	23.95	-2.03	-239.09
BIHAR	19.96	13.07	-6.89	146.68	73.97	-72.71	29.47	61.42	-31.95	-111.54
JHARKHAND	0.47	86.84	86.37	26.16	30.64	4.48	10.17	18.77	-8.60	82.25
SIKKIM	0.00	0.00	0.00	20.08	0.00	-20.08	4.66	3.27	1.40	-18.69
DVC	143.95	0.00	-143.95	0.78	62.30	61.51	30.42	25.93	4.49	-77.95
ARUNACHAL P	0.00	0.00	0.00	2.64	0.00	-2.64	5.23	2.93	2.30	-0.34
ASSAM	0.00	35.72	35.72	197.14	24.43	-172.72	14.07	5.24	8.83	-128.17
MANIPUR	0.00	0.00	0.00	4.47	0.61	-3.86	3.70	1.39	2.31	-1.56
MEGHALAYA	1.84	0.00	-1.84	1.79	22.61	20.83	6.25	1.88	4.38	23.37
MIZORAM	0.00	0.00	0.00	22.01	0.00	-22.01	2.67	3.44	-0.77	-22.78
NAGALAND	0.86	0.00	-0.86	0.37	3.06	2.70	0.84	2.68	-1.83	0.00
TRIPURA	0.00	0.00	0.00	26.55	0.00	-26.55	1.66	14.03	-12.37	-38.92
NTPC STNS-NR	0.00	0.00	0.00	1.01	0.00	-1.01	60.86	58.05	2.82	1.81
NHPC STNS	0.00	0.00	0.00	0.00	0.00	0.00	17.38	59.62	-42.25	-42.25
NFF	0.00	0.00	0.00	0.00	0.00	0.00	2.52	0.08	2.43	2.43
RAIL	0.00	0.00	0.00	0.00	0.00	0.00	3.14	5.22	-2.09	-2.09
NEP	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.43	0.43
NAPP	0.00	0.00	0.00	0.00	0.00	0.00	9.43	1.37	8.06	8.06
RAP B	0.00	0.00	0.00	0.00	0.00	0.00	20.23	10.36	9.87	9.87
NJPC	0.00	0.00	0.00	0.00	0.00	0.00	3.38	5.52	-2.14	-2.14
TEHRI	0.00	0.00	0.00	0.00	0.00	0.00	1.54	2.66	-1.12	-1.12
BBMB	0.00	0.00	0.00	0.00	0.00	0.00	2.69	12.47	-9.78	-9.78
RAP C	0.00	0.00	0.00	0.00	0.00	0.00	1.83	11.78	-9.94	-9.94
AD HYDRO	0.00	0.00	0.00	21.04	0.00	-21.04	0.64	1.15	-0.51	-21.54
IGSTPS	0.00	0.00	0.00	0.00	0.00	0.00	3.32	3.25	0.07	0.07
KOTESHWAR	0.00	0.00	0.00	0.00	0.00	0.00	1.50	1.63	-0.12	-0.12
KARCHAM WANGT	0.00	0.00	0.00	19.72	0.00	-19.72	4.52	4.12	0.40	-19.32
SHREE CEMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.08	0.20	0.20

LANCO BUDHIL	0.00	0.00	0.00	0.98	0.00	-0.98	0.08	0.48	-0.40	-1.38
RAMPUR HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.60	4.51	-3.92	-3.92
MALANA	0.00	0.00	0.00	1.27	0.00	-1.27	0.24	0.11	0.13	-1.14
SAINJ HEP	0.00	0.00	0.00	17.11	0.00	-17.11	0.41	1.13	-0.73	-17.84
KISHANGANGA HE	0.00	0.00	0.00	0.00	0.00	0.00	1.09	1.35	-0.26	-0.26
RENEW_SLR	0.00	0.00	0.00	0.00	0.00	0.00	1.06	0.40	0.66	0.66
AZURE_SLR	0.00	0.00	0.00	0.00	0.00	0.00	4.71	3.45	1.26	1.26
SB_SLR	0.00	0.00	0.00	0.00	0.00	0.00	4.30	3.86	0.43	0.43
MAHOBIA_SLR	0.00	0.00	0.00	0.00	0.00	0.00	3.62	3.49	0.13	0.13
ACME_SLR	0.00	0.00	0.00	0.00	0.00	0.00	2.98	1.30	1.68	1.68
AZURE34_SLR	0.00	0.00	0.00	0.00	0.00	0.00	3.41	1.96	1.45	1.45
TATA_SLR	0.00	0.00	0.00	0.00	0.00	0.00	2.82	2.43	0.38	0.38
NTPC STNS-WR	0.00	0.00	0.00	17.46	0.00	-17.46	91.99	52.73	39.27	21.81
BHADRAVATHI HV	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.12	-0.10	-0.10
VINDHYACHAL HV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	-0.10	-0.10
JINDAL POWER	54.82	0.00	-54.82	0.26	0.00	-0.26	1.34	1.61	-0.27	-55.36
LANCO_AMK	5.12	0.00	-5.12	0.00	0.00	0.00	0.47	2.56	-2.08	-7.21
NSPCL	0.00	0.00	0.00	0.00	0.00	0.00	1.87	0.75	1.12	1.12
ACBIL	0.73	0.00	-0.73	38.33	0.00	-38.33	1.87	3.21	-1.34	-40.40
BALCO	2.11	0.00	-2.11	0.08	0.00	-0.08	11.68	0.59	11.09	8.90
RGPL (DABHOL)	0.00	0.00	0.00	0.05	0.00	-0.05	23.63	2.85	20.78	20.73
CGPL	0.00	0.00	0.00	0.00	0.00	0.00	34.22	5.45	28.77	28.77
DCPP	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
EMCO	0.00	0.00	0.00	0.03	0.00	-0.03	7.90	4.46	3.44	3.41
ESSAR STEEL	0.00	175.83	175.83	0.00	1.41	1.41	21.41	21.47	-0.06	177.18
KSK MAHANADI	185.82	0.00	-185.82	0.00	0.00	0.00	1.84	1.24	0.60	-185.21
ESSAR POWER	176.70	0.00	-176.70	4.54	0.00	-4.54	2.33	1.01	1.32	-179.92
JINDAL STAGE-II	0.00	0.00	0.00	0.00	0.00	0.00	4.99	1.11	3.88	3.88
DB POWER	71.15	0.00	-71.15	59.72	0.00	-59.72	19.13	1.06	18.07	-112.79
DHARIWAL POWER	0.02	0.00	-0.02	0.05	0.00	-0.05	0.91	0.43	0.48	0.41
JAYPEE NIGRIE	6.79	0.00	-6.79	136.27	0.00	-136.27	0.89	4.54	-3.65	-146.70
DGEN MEGA POWE	0.00	0.00	0.00	0.00	0.00	0.00	1.23	0.00	1.23	1.23
GMR CHATTISGAR	440.03	0.00	-440.03	100.72	0.00	-100.72	18.84	2.24	16.60	-524.15
KORBA WEST POW	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.00	0.85	0.85
MB POWER	86.75	0.00	-86.75	81.98	0.00	-81.98	21.03	4.37	16.66	-152.07
MARUTI COAL	0.00	0.00	0.00	26.57	0.00	-26.57	0.00	0.00	0.00	-26.57
SPECTRUM	0.00	0.00	0.00	57.43	0.00	-57.43	0.00	0.00	0.00	-57.43
JHABUA POWER_M	3.29	0.00	-3.29	17.22	0.00	-17.22	13.36	0.94	12.43	-8.08
SASAN UMPP	0.00	0.00	0.00	0.00	0.00	0.00	0.57	54.89	-54.32	-54.32
TRN ENERGY	0.00	0.00	0.00	0.00	0.00	0.00	0.55	1.01	-0.46	-0.46
RKM POWER	0.00	0.00	0.00	0.00	0.00	0.00	1.64	1.06	0.58	0.58
SKS POWER	112.21	0.00	-112.21	0.68	0.00	-0.68	2.82	0.70	2.12	-110.77
BARC	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.21	-0.16	-0.16
KAPP 3&4	0.00	0.00	0.00	0.00	0.00	0.00	2.88	0.00	2.88	2.88
HVDC CHAMPA	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.23	0.37	0.37
MAHINDRA_RUMS	0.00	0.00	0.00	0.00	0.00	0.00	3.61	1.61	2.00	2.00
ARINSUM_RUMS	0.00	0.00	0.00	0.00	0.00	0.00	2.28	2.12	0.16	0.16
OSTRO	0.00	0.00	0.00	0.00	0.00	0.00	6.39	8.05	-1.66	-1.66
ACME_RUMS	0.00	0.00	0.00	0.00	0.00	0.00	2.20	2.28	-0.08	-0.08
RENEW_BHACHAU	0.00	0.00	0.00	0.00	0.00	0.00	5.50	5.91	-0.41	-0.41
GIWEL_BHUJ	0.00	0.00	0.00	0.00	0.00	0.00	8.65	10.74	-2.09	-2.09
INOX_BHUJ	0.00	0.00	0.00	0.00	0.00	0.00	1.60	1.55	0.05	0.05
AGEMPL BHUJ	0.00	0.00	0.00	0.00	0.00	0.00	1.92	1.52	0.40	0.40
NTPC STNS-SR	0.00	0.00	0.00	6.16	0.00	-6.16	36.12	21.71	14.41	8.25
LANCO KONDAPAI	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.60	0.60
SIMHAPURI	0.00	0.00	0.00	0.00	0.00	0.00	0.39	0.00	0.39	0.39
MEENAKSHI	0.00	0.00	0.00	0.00	0.00	0.00	0.64	0.00	0.64	0.64
COASTGEN	5.89	0.00	-5.89	39.91	0.00	-39.91	2.19	2.91	-0.73	-46.53

THERMAL POWER	142.62	0.00	-142.62	104.53	0.00	-104.53	3.95	2.06	1.89	-245.25
IL&FS	324.56	0.00	-324.56	1.44	0.00	-1.44	7.24	0.17	7.07	-318.93
NLC	0.00	0.00	0.00	112.61	0.00	-112.61	20.92	38.07	-17.15	-129.75
SEMBCORP	0.00	0.00	0.00	153.21	0.00	-153.21	10.86	2.32	8.54	-144.67
NETCL VALLUR	0.00	0.00	0.00	0.00	0.00	0.00	11.23	1.01	10.22	10.22
NTPL	0.00	0.00	0.00	0.02	0.00	-0.02	3.65	1.84	1.81	1.79
NTPC STNS-ER	0.00	0.00	0.00	0.01	0.00	-0.01	45.84	32.70	13.14	13.13
MAITHON POWER	0.00	0.00	0.00	0.00	0.00	0.00	3.30	5.45	-2.15	-2.15
NPGC	0.00	0.00	0.00	0.00	0.00	0.00	6.91	2.44	4.47	4.47
ADHUNIK POWER	82.39	0.00	-82.39	0.00	0.00	0.00	5.05	0.59	4.46	-77.93
CHUZACHEN HEP	16.07	0.00	-16.07	2.53	0.00	-2.53	0.39	0.63	-0.24	-18.84
RANGIT HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.28	1.14	-0.86	-0.86
GMR KAMALANGA	2.22	0.00	-2.22	0.70	0.00	-0.70	2.73	1.07	1.66	-1.26
JITPL	0.00	0.00	0.00	16.94	0.00	-16.94	3.76	0.74	3.03	-13.91
TEESTA HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.11	5.89	-5.78	-5.78
DAGACHU	36.00	0.00	-36.00	0.00	0.00	0.00	9.82	0.00	9.82	-26.18
JORETHANG	0.00	0.00	0.00	27.37	0.00	-27.37	2.40	0.53	1.87	-25.50
NEPAL(NVVN)	0.00	0.00	0.00	0.00	0.00	0.00	6.52	2.86	3.66	3.66
BANGLADESH	0.00	7.44	7.44	0.00	0.00	0.00	6.75	5.44	1.32	8.75
HVDC PUS	0.00	78.56	78.56	0.00	0.00	0.00	0.02	0.08	-0.06	78.49
TEESTA STG3	0.00	0.00	0.00	218.04	0.00	-218.04	7.88	1.00	6.88	-211.16
DIKCHU HEP	1.20	0.00	-1.20	15.53	0.00	-15.53	0.66	0.94	-0.28	-17.01
HVDC ALPD	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.16	-0.14	-0.14
TASHIDENG HEP	0.00	0.00	0.00	27.96	0.00	-27.96	1.14	0.48	0.66	-27.30
BRBCL,NABINAGA	0.08	0.00	-0.08	2.07	0.00	-2.07	4.85	5.90	-1.05	-3.21
MTPS II	0.00	0.00	0.00	0.00	0.00	0.00	5.58	0.84	4.74	4.74
TALA HEP	0.00	0.00	0.00	0.00	0.00	0.00	93.57	0.02	93.56	93.56
CHUKHA HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.01	66.12	-66.11	-66.11
KURICHU HEP	0.00	0.00	0.00	0.00	0.00	0.00	8.30	0.68	7.62	7.62
MANGDECHU HEP	0.00	0.00	0.00	0.00	0.00	0.00	3.72	3.82	-0.11	-0.11
NTPC STNS-NER	4.09	0.00	-4.09	5.53	0.00	-5.53	7.86	5.77	2.09	-7.53
NEEPCO STNS	0.00	0.00	0.00	0.00	0.00	0.00	0.86	7.35	-6.49	-6.49
RANGANADI HEP	0.00	0.00	0.00	0.00	0.00	0.00	1.11	1.71	-0.60	-0.60
DOYANG HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.65	-0.42	-0.42
ONGC PALATANA	32.22	0.00	-32.22	1.92	0.00	-1.92	0.67	0.77	-0.10	-34.25
LOKTAK	0.00	0.00	0.00	0.00	0.00	0.00	0.24	1.75	-1.50	-1.50
PARE HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.48	-0.38	-0.38
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, power exchange and DSM										

Figure 7: Bilateral Contracts executed by Traders in December, 2019

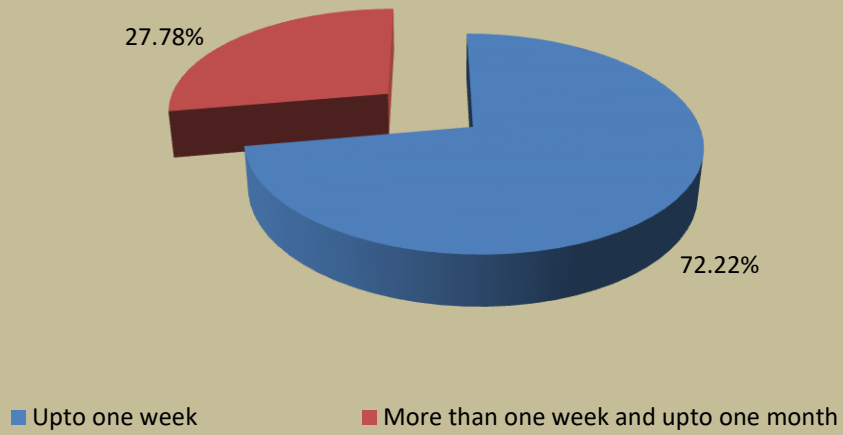


Figure-8: Forward Curve based on Prices of Bilateral Contracts

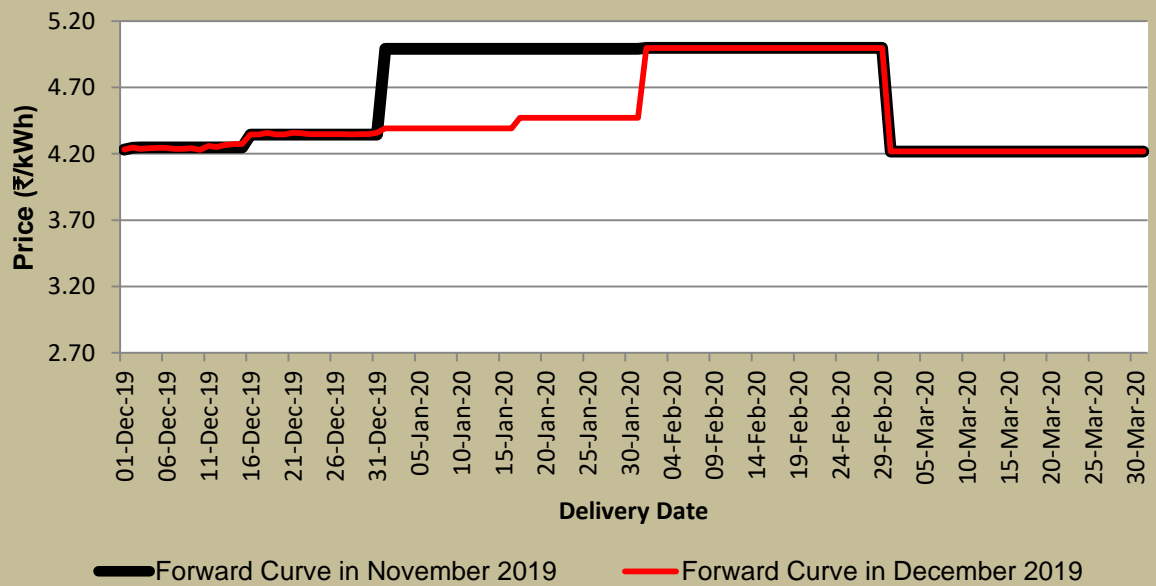


Table-20 : VOLUME AND PRICE OF RENEWABLE ENERGY CERTIFICATES (RECs) TRANSACTIONED THROUGH POWER EXCHANGES, NOVEMBER 2019					
Sr. No.	Details of REC Transactions	IEX		PXIL	
		Solar	Non-Solar	Solar	Non Solar
A	Volume of Buy Bid	472255	698160	206678	572363
B	Volume of Sell Bid	36801	321789	17652	162570
C	Ratio of Buy Bid to Sell Bid Volume	12.83	2.17	11.71	3.52
D	Market Clearing Volume (MWh)	36801	291932	17652	159288
E	Weighted average Market Clearing Price (₹/MWh)	2400	1800	2400	1850

Source: IEX and PXIL

Note 1: 1 REC = 1 MWh

Note 2:

<i>Forbearance and Floor Price w.e.f 1st April 2017</i>		
Type of REC	Floor Price (₹/MWh)	Forbearance Price (₹/MWh)
<i>Solar</i>	<i>1000.00</i>	<i>2400.00</i>
<i>Non-Solar</i>	<i>1000.00</i>	<i>3000.00</i>