

Monthly Report on Short-term Transactions of Electricity in India

April, 2019



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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	17
Table-11	Volume of Electricity Sold through Power Exchanges	18
Table-12	Volume of Electricity Purchased through Power Exchanges	20
Table-13	Volume of Electricity Underdrawal through DSM	21
Table-14	Volume of Electricity Over drawal through DSM	24
Table-15	Total Volume of Net Short-term Transactions of Electricity (Regional Entity-wise)	27
Table-16	Details of Congestion in Power Exchanges	30
Table-17	Volume of Short-term Transactions of Electricity in India (Day-wise)	31
Table-18	Price of Electricity in Short-term Transactions (Day-wise)	32
Table-19	Volume of Short-term Transactions of Electricity (Regional Entity-wise)	33
Table-20	Volume and Price of Renewable Energy Certificates (RECs) Transacted through Power Exchanges	37
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 May, 2019	36
Figure-8	Forward Curve based on Prices of Bilateral Contracts	36

Abbreviations

Abbreviation	Expanded Version
ACBIL	ACB (India) Limited
ACP	Area Clearing Price
ACV	Area Clearing Volume
ACME_RUMS	Acme Rewa Ultra Mega Solar Project
Adani HVDC	Adani Power Limited (High Voltage Direct Line Current Line)
AD HYDRO	AD Hydro Power Limited
ARINSUM_RUMS	SolenergiRewa UltraMega Solar Project
BALCO	Bharat Aluminum Company Limited
BARC	Bhabha Atomic Research Centre
BBMB	Bhakra Beas Management Board
BRBCL	Bhartiya Rail Bijlee Company Limited
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CGPL	Coastal Gujarat Power Limited
CHUZACHEN HEP	ChuzachenHydro 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
DOYANG HEP	DoyangHydro Electric Project
DSM	Deviation Settlement Mechanism
DVC	Damodar Valley Corporation
EMCO	EMCO Energy Limited
ESSAR POWER	Essar Power Limited
ESSAR STEEL	Essar Steel Ltd
GMR CHHATTISGARH	GMR Chhattisgarh Energy Limited
GMR KAMALANGA	GMR Kamalanga Energy Ltd.
HVDC CHAMPA	Champa-Kurukshetra 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
J&K	Jammu & Kashmir
JAYPEE NIGRIE	JaypeeNigrie 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	KarchamWangtoo H.E. Project
KORBA WEST POWER	Korba West Power Company Limited

KOTESHWAR	Koteshwar Hydro Power project
KSK MAHANADI	KSK Mahanadi Power Ltd
LANKOAMK	Lanco Amarkantak Power Private Limited
LANKO BUDHIL	Lanco Budhil Hydro Power Private Limited
LANKOKONDAPALLY	Lanco Kondapally Power Private Limited
LOKTAK	Loktak Power Project
MAHINDRA_RUMS	Mahindra Rewa Ultra Mega Solar Project
MALANA	Malana Hydroelectric Plant
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
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
OSTRO	Ostro Energy Private Limited
OTC	Over The Counter
PX	Power Exchange
PXIL	Power Exchange India Limited
RAIL	Indian Railways
RAMPUR HEP	Rampur Hydro Electric Power Project
RANGIT HEP	Rangit Hydroelectric power project
RAP-B	Rajasthan Atomic Power Plant-B
RAP-C	Rajasthan Atomic Power Plant-C
REC	Renewable Energy Certificate
RGPPL	Ratnagiri Gas and Power Private Limited
RLDC	Regional Load Dispatch Centre
RTC	Round The Clock
Sasan UMP	Sasan Ultra Mega Power Project
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
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

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 **April, 2019** are as under:

I: Volume of Short-term Transactions of Electricity

During April 2019, total electricity generation excluding generation from renewable and captive power plants in India was 108929.91 MUs (Table-1).

Of the total electricity generation, 11684.86 MUs (10.73%) was transacted through short-term, comprising of 5969.82 MUs (5.48%) through bilateral (through traders and term-ahead contracts on power exchanges and directly between distribution companies), followed by 4036.84 MUs (3.71%) through day ahead collective transactions on power exchanges and 1678.20 MUs (1.54%) through DSM (Table-1 & Figure-2).

Of the total short-term transactions, bilateral constitutes 51.09% (30.20% through traders and term-ahead contracts on power exchanges and 20.89% directly between distribution companies) followed by 34.55% through day ahead collective transactions on power exchanges and 14.36% 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 April, 2019. In April 2019, 24 trading licensees were engaged in short term trading. Top 5 trading licensees had a share of 73.80% in the total volume traded by all the licensees. These are PTC India Ltd., Manikaran Power Ltd., Kreate Energy (I) Pvt. Ltd., NTPC Vidyut Vyapar Nigam Ltd. and GMR Energy Trading 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 0.2012 for the month of April, 2019, which indicates moderate concentration of market power (Table-2).

The volume of electricity transacted through IEX and PXIL in the day ahead market was 4005.41 MUs and 31.43 MUs respectively. The volume of total buy bids and sell bids was 5208.15 MUs and 8042.62 MUs respectively in IEX while the same was 34.24 MUs and 67.28 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 332.44 MUs and 293.46 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 ₹ 3.01/kWh, ₹ 7.30/kWh and ₹ 5.15/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 ₹ 5.01/kWh, ₹ 6.49/kWh and ₹ 5.98/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, ₹ 11.84/kWh and ₹ 3.33/kWh respectively in IEX and it were ₹ 2.01/kWh, ₹ 4.24/kWh and ₹ 3.71/kWh respectively in PXIL (Table-5).

The price of electricity transacted through IEX and PXIL in the term-ahead market was ₹ 3.82/kWh and ₹ 4.09/kWh respectively (Table-6 and Table-7).

(iii) Price of electricity transacted through DSM: The average deviation settlement price was ₹ 3.03/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 is 3 paise/kWh.

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

Of the total bilateral transactions, top 5 regional entities sold 48.94% of the volume, and these were Punjab, Thermal Powertech Corporation India Ltd., Madhya Pradesh, Essar Power Ltd. and Infrastructure Leasing & Financial Services Limited. Top 5 regional entities

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.

purchased 59.39% of the volume, and these were Tamil Nadu, West Bengal, Chhattisgarh, Uttar Pradesh and Andhra Pradesh (Table-9 & 10).

Of the total power exchange transactions, top 5 regional entities sold 43.88% of the volume, and these were Madhya Pradesh, Himachal Pradesh, Teesta Stage 3 Hydro Power Project, Damodar Valley Corporation and Rajasthan. Top 5 regional entities purchased 59.63% of the volume, and these were Gujarat, Maharashtra, Tamil Nadu, Telangana and Odisha (Table-11 & 12).

Of the total DSM transactions, top 5 regional entities under drew 29.46% of the volume, and these were NTPC Station (Western Region), Gujarat, Uttar Pradesh, Rajasthan and Telangana (Table-13). Top 5 regional entities overdrew 23.73% of the volume, and these were NTPC Station (Western Region), Odisha, Rajasthan, Uttar Pradesh and NTPC Station (Eastern 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 Madhya Pradesh, Punjab, Thermal Powertech Corporation India Ltd., Essar Power Ltd. and Himachal Pradesh. Top 5 electricity purchasing regional entities were Tamil Nadu, Gujarat, West Bengal, Maharashtra and Andhra Pradesh.

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

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

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

In the month of April 2019, congestion occurred both in IEX and PXIL. The details of congestion are shown in Table-16. The volume of electricity that could not be cleared due to congestion and could not be transacted through power exchanges is the difference between unconstrained cleared volume (volume of electricity that would have been scheduled, had there been no congestion) and actual cleared volume.

During the month, the volume of electricity that could not be cleared in IEX and PXIL due to congestion was 1.59% and 7.31% of the unconstrained cleared volume respectively. In terms of time, congestion occurred was 16.35% and 4.69% respectively in IEX and PXIL (Table-16).

VI: Bilateral Contracts executed by Traders

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

(i) Duration of bilateral contracts: During May 2019, a total of 116 bilateral contracts (excluding banking/swap contracts) have been executed by traders for the volume of 788.57MUs. Figure-7 shows the percentage of contracts categorized according to the period of power supply. It can be observed from the figure that 98.28% of the bilateral contracts were executed for duration of up to one week, 0.86% of the contracts were executed for duration of more than a week and up to one month, no contracts were executed for duration of more than one month and up to three months, while 0.86% of the contracts were executed for duration of more than three months and up to twelve months.

During the month, 50 banking/ swapping bilateral contracts were also executed for the volume of 2949.06 MUs.

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 May, 2019 to 31st August, 2019 based on the bilateral contracts⁴ executed till May, 2019. Forward curves have been drawn for the contracts executed in April, 2019 and May, 2019 for the purpose of comparison. It is observed that forward contract prices are higher for the contracts executed in May, 2019 compared to the contracts executed in April, 2019 during the period 1st June 2019 – 30th June 2019.

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 April, 2019 are shown in Table-20. The market clearing volume of solar RECs transacted on IEX and PXIL were 62853 and 20125 respectively and the weighted average market clearing price of these RECs was ₹ 2000/MWh in IEX and ₹ 1800/MWh in PXIL. Market clearing volume of non-solar RECs transacted on IEX and PXIL were 161949 and 123975 respectively and the weighted average market clearing price of these RECs was ₹ 1300/MWh in IEX and ₹ 1500/MWh in PXIL.

⁴Excluding Banking/Swapping contracts

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 2.54 and 2.51 in IEX and PXIL respectively. For non-solar RECs, the ratio of buy bids to sell bids was 1.98 and 2.58 in IEX and PXIL respectively.

VIII: Inferences:

- The percentage of short-term transactions of electricity to total electricity generation was 10.73%.
- Of the total short-term transactions, bilateral constitutes 51.09% (30.20% through traders and term-ahead contracts on power exchanges and 20.89% directly between distribution companies) followed by 34.55% through day ahead collective transactions on power exchanges and 14.36% through DSM
- Top 5 trading licensees had a share of 73.80% 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 0.2012, indicating moderate concentration of market power.
- The weighted average price of electricity transacted through trading licensees was ₹ 5.15/kWh. The weighted average price of electricity transacted through IEX and PXIL were ₹ 3.33/kWh and ₹ 3.71/kWh respectively.
- The average price of electricity transacted through DSM was ₹ 3.03/kWh.
- Top 5 electricity selling regional entities were Madhya Pradesh, Punjab, Thermal Powertech Corporation India Ltd., Essar Power Ltd. and Himachal Pradesh. Top 5 electricity purchasing regional entities were Tamil Nadu, Gujarat, West Bengal, Maharashtra and Andhra Pradesh.
- During the month, the volume of electricity that could not be cleared in IEX and PXIL due to congestion was 1.59% and 7.31% of the unconstrained cleared volume respectively. In terms of time, congestion occurred was 16.35% and 4.69% respectively in IEX and PXIL.
- In May 2019, 98.28% of the bilateral contracts were executed for duration of up to one week, 0.86% of the contracts were executed for duration of more than a week and up to one month, no contracts were executed for duration of more than one month and up to three months, while 0.86% of the contracts were executed for duration of more than three months and up to twelve months.

- The forward curve of electricity sale prices for the period from 1st May, 2019 to 31st August, 2019 based on the bilateral contracts⁵ executed till May, 2019 shows that forward contract prices are higher for the contracts executed in May, 2019 compared to the contracts executed in April, 2019 during the period 1st June 2019– 30th June 2019.
- The market clearing volume of solar RECs transacted on IEX and PXIL were 62853 and 20125 respectively and the weighted average market clearing price of these RECs was ₹ 2000/MWh in IEX and ₹ 1800/MWh in PXIL. Market clearing volume of non-solar RECs transacted on IEX and PXIL were 161949 and 123975 respectively and the weighted average market clearing price of these RECs was ₹ 1300/MWh in IEX and ₹ 1500/MWh in PXIL.

⁵*Excluding Banking/Swapping contracts*

Table-1: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (ALL INDIA), APRIL 2019				
Sr.No	Short-term transactions	Volume (MUs)	% to Volume of short-term transactions	% to Total Generation
1	Bilateral	5969.82	51.09	5.48
	(i) Through Traders and PXs	3528.84	30.20	3.24
	(ii) Direct	2440.98	20.89	2.24
2	Through Power Exchanges	4036.84	34.55	3.71
	(i) IEX	4005.41	34.28	3.68
	(ii) PXIL	31.43	0.269	0.0289
3	Through DSM	1678.20	14.36	1.54
	Total	11684.86	-	10.73
	Total Generation	108929.91	-	-

Source: NLDC

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

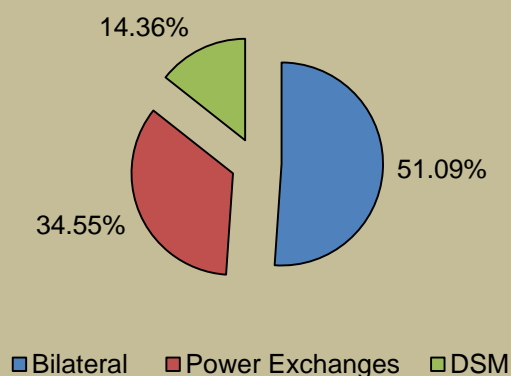
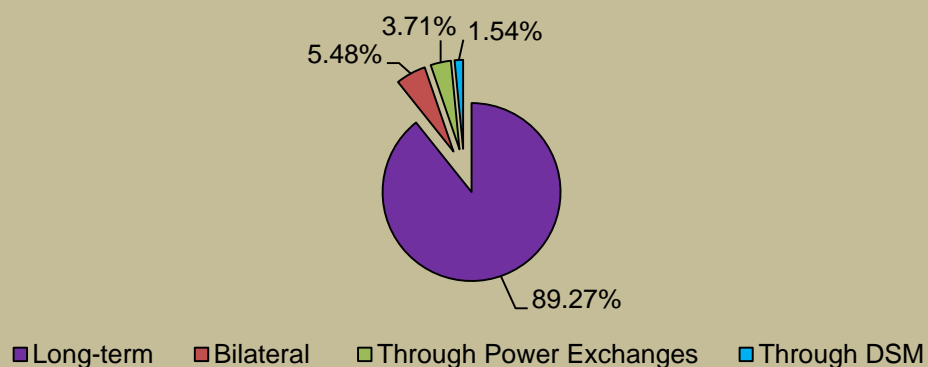


Figure-2: Volume of Various Kinds of Electricity Transactions in Total Electricity Generation, April 2019



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

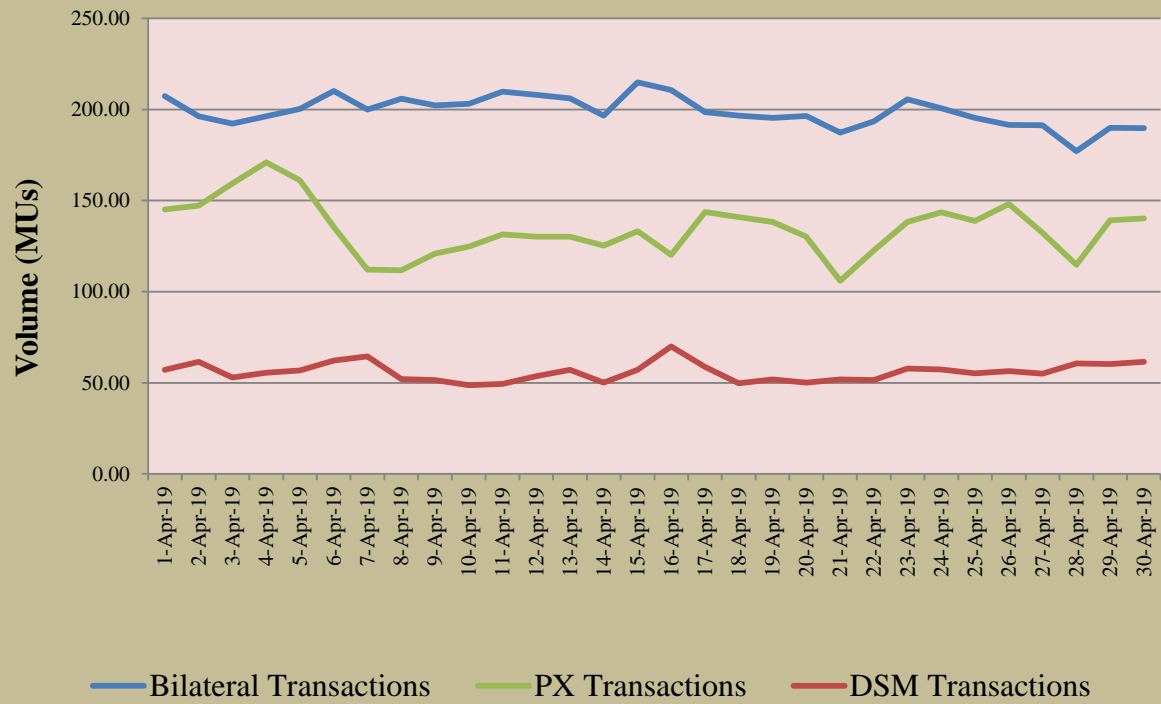


Table-2: PERCENTAGE SHARE OF ELECTRICITY TRANSACTED BY TRADING LICENSEES, APRIL 2019

Sr.No	Name of the Trading Licensee	% Share in total Volume transacted by Trading Licensees	Herfindahl-Hirschman Index
1	PTC India Ltd.	39.80	0.1584
2	Manikaran Power Ltd.	14.36	0.0206
3	Kreate Energy (I) Pvt. Ltd.	8.46	0.0072
4	NTPC Vidyut Vyapar Nigam Ltd.	6.11	0.0037
5	GMR Energy Trading Ltd.	5.07	0.0026
6	Arunachal Pradesh Power Corporation (P) Ltd	4.93	0.0024
7	Tata Power Trading Company (P) Ltd.	4.91	0.0024
8	Essar Electric Power Development Corp. Ltd.	3.96	0.0016
9	Adani Enterprises Ltd.	3.59	0.0013
10	Jaiprakash Associates Ltd.	1.87	0.0004
11	Knowledge Infrastructure Systems (P) Ltd	1.34	0.0002
12	National Energy Trading & Services Ltd.	1.06	0.0001
13	JSW Power Trading Company Ltd	1.04	0.0001
14	Instinct Infra & Power Ltd.	0.81	0.0001
15	Statkraft Markets Pvt. Ltd.	0.76	0.0001
16	Refex Energy Limited	0.74	0.0001
17	RPG Power Trading Company Ltd.	0.60	0.0000
18	Shree Cement Ltd.	0.19	0.0000
19	Abja Power Private Limited	0.10	0.0000
20	NHPC Limited	0.10	0.0000
21	Customized Energy Solutions India (P) Ltd.	0.09	0.0000
22	IPCL Power Trading Pvt. Ltd.	0.07	0.0000
23	Gita Power & Infrastructure Private Limited	0.03	0.0000
24	Phillip Commodities India (P) Ltd.	0.010	0.0000
TOTAL		100.00%	0.2012
Top 5 trading licensees		73.80%	
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 4: Percentage Share of Electricity Transacted by Trading Licensees, April 2019

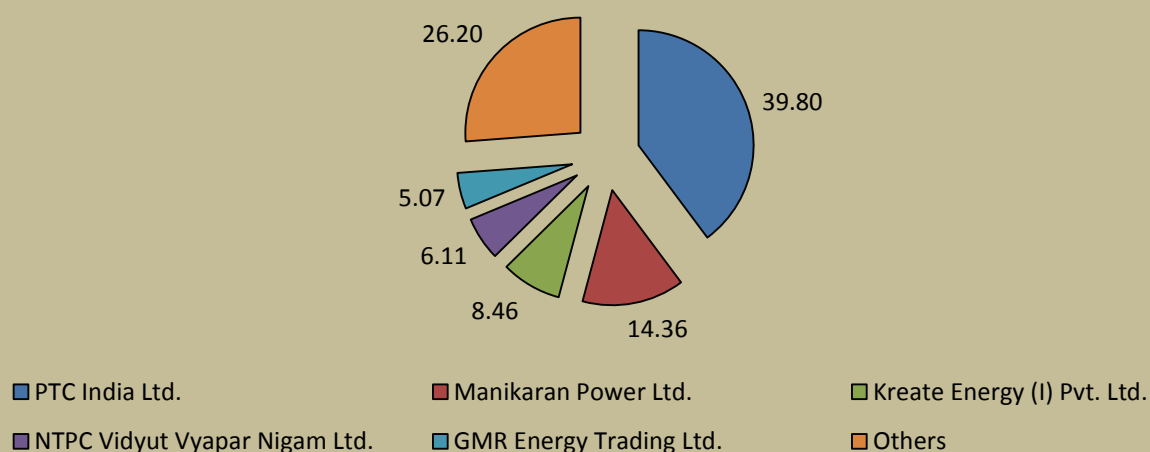


Table-3: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS, APRIL 2019		
Sr.No	Item	Sale Price of Traders (₹/kWh)
1	Minimum	3.01
2	Maximum	7.30
3	Weighted Average	5.15

Source: Information submitted by trading licensees

Table-4: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS (TIME-WISE), APRIL 2019		
Sr.No	Period of Trade	Sale Price of Traders (₹/kWh)
1	RTC	5.01
2	PEAK	6.49
3	OFF PEAK	5.98

Source: Information submitted by trading licensees

Table-5: PRICE OF ELECTRICITY TRANSACTED THROUGH POWER EXCHANGES, APRIL 2019			
Sr.No	ACP	Price in IEX (₹/kWh)	Price in PXIL (₹/kWh)
1	Minimum	1.80	2.01
2	Maximum	11.84	4.24
3	Weighted Average	3.33	3.71

Source: Information submitted by IEX and PXIL

Table-6: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF IEX, APRIL 2019			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	51.01	4.03
2	Day Ahead Contingency Contracts	281.43	3.79
	Total	332.44	3.82

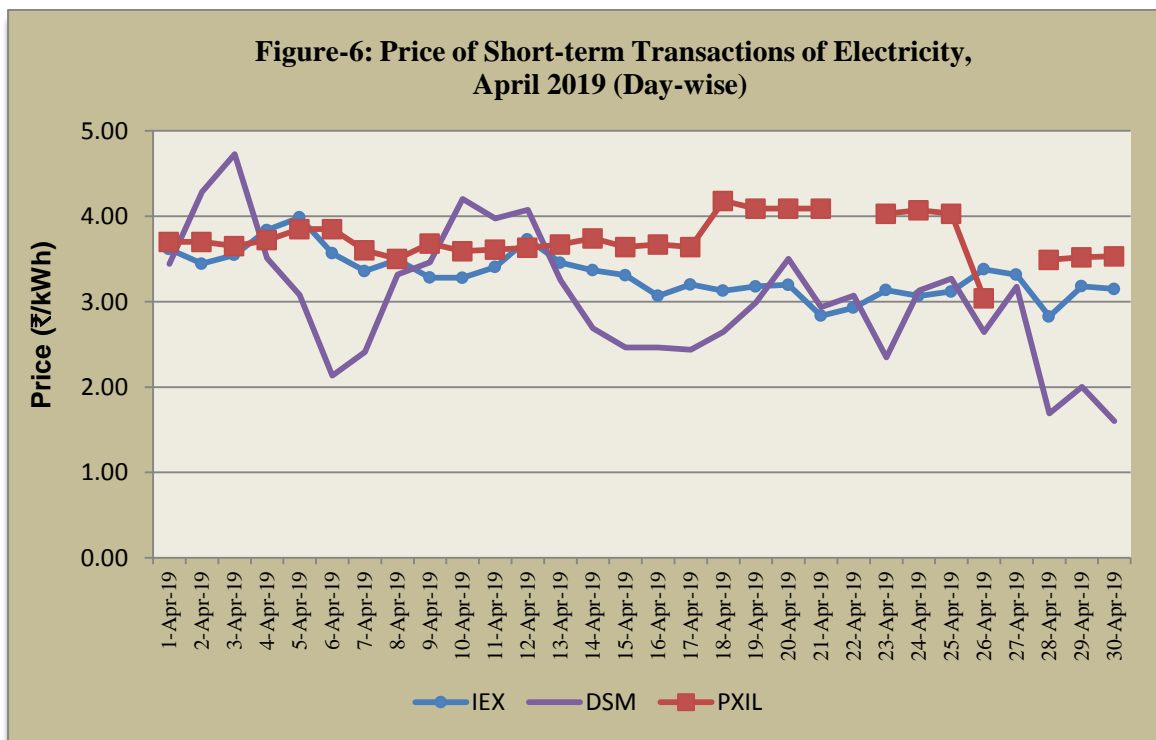
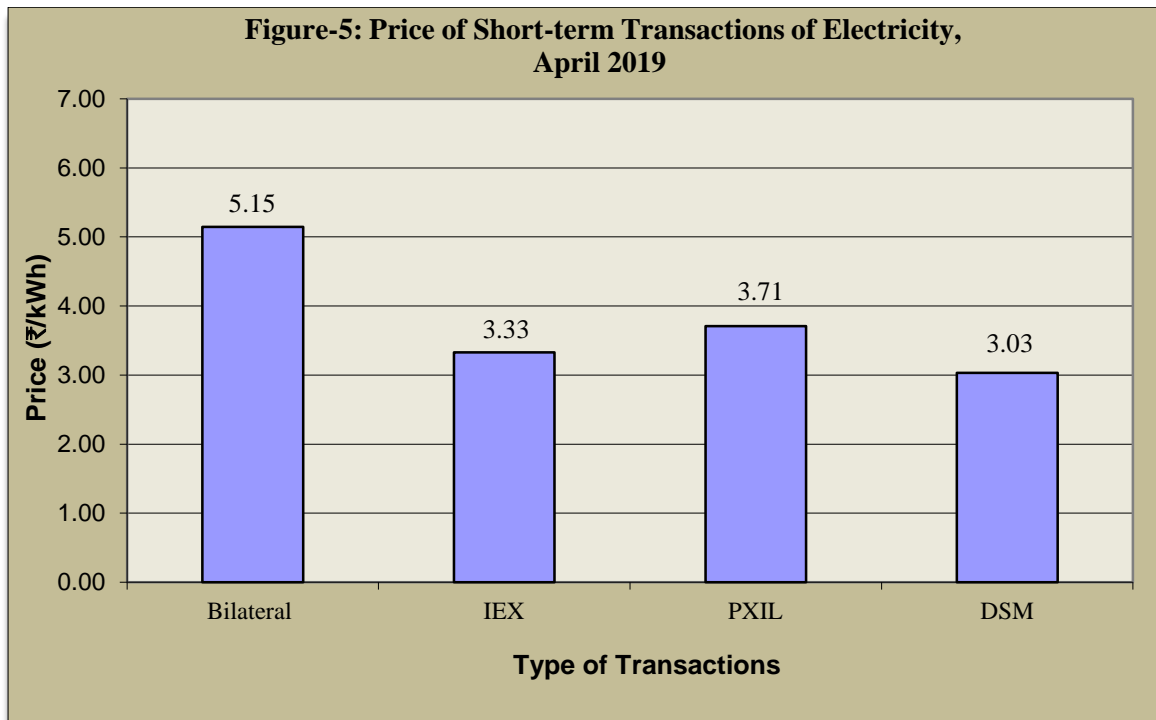
Source: IEX

Table-7: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF PXIL, APRIL 2019			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	90.24	4.00
2	Any Day(s) Contracts	44.91	4.10
3	Weekly Contracts	158.31	4.13
	Total	293.46	4.09

Source: PXIL

Table-8: PRICE OF ELECTRICITY TRANSACTED THROUGH DSM, APRIL 2019		
Sr.No	Item	Price in All India Grid (₹/kWh)
1	Minimum	0.00
2	Maximum	8.00
3	Average	3.03

Source: NLDC



Note: In PXIL, no transactions were recorded on 22nd and 27th of April 2019.

Table-9: VOLUME OF ELECTRICITY SOLD THROUGH BILATERAL, APRIL 2019		
Name of the Entity	Volume of Sale (MUs)	% of Volume
PUNJAB	946.76	15.76
THERMAL POWERTECH	710.35	11.83
MP	468.11	7.79
ESSAR POWER	452.92	7.54
IL&FS	361.17	6.01
JAYPEE NIGRIE	305.47	5.09
GMR CHATTISGARH	291.41	4.85
DGEN MEGA POWER	248.70	4.14
DB POWER	212.44	3.54
CHHATTISGARH	202.74	3.38
JINDAL STAGE-II	177.43	2.95
GUJARAT	139.70	2.33
ADHUNIK POWER LTD	131.92	2.20
SHREE CEMENT	127.72	2.13
RAJASTHAN	105.66	1.76
HARYANA	92.40	1.54
MB POWER	91.69	1.53
SKS POWER	87.13	1.45
ANDHRA PRADESH	83.07	1.38
DELHI	72.30	1.20
DCPP	66.82	1.11
HIMACHAL PRADESH	63.68	1.06
WEST BENGAL	59.17	0.99
J & K	59.01	0.98
DVC	48.50	0.81
KARNATAKA	43.57	0.73
ONGC PALATANA	43.16	0.72
JHABUA POWER_MP	39.67	0.66
TELANGANA	37.34	0.62
BRBCL,NABINAGAR	26.22	0.44
GMR KAMALANGA	22.52	0.37
TRIPURA	21.59	0.36
SIKKIM	18.00	0.30
CHUZACHEN HEP	17.91	0.30
MAHARASHTRA	17.89	0.30
BALCO	17.36	0.29
DAGACHU	17.21	0.29
TASHIDENG HEP	15.48	0.26
JORETHANG	15.40	0.26
ODISHA	10.18	0.17
JITPL	7.14	0.12
LANKO_AMK	5.40	0.09
COASTGEN	4.54	0.08
UTTAR PRADESH	3.98	0.07
TAMIL NADU	2.96	0.05
NTPC STATIONS-NER	2.83	0.05
MANIPUR	2.20	0.04
JINDAL POWER	1.62	0.03
MEGHALAYA	1.44	0.02
TEESTA STG3	1.08	0.02

ACBIL	0.74	0.01
MIZORAM	0.72	0.01
BIHAR	0.63	0.01
JHARKHAND	0.27	0.00
KARCHAM WANGTOO	0.14	0.00
TOTAL	6005.47	100.00
Volume Sold by top 5 Regional Entities	2939.31	48.94

Table-10: VOLUME OF ELECTRICITY PURCHASED THROUGH BILATERAL, APRIL 2019		
Name of the Entity	Volume of Purchase (MUs)	% of Volume
TAMIL NADU	1416.23	23.72
WEST BENGAL	558.71	9.36
CHHATTISGARH	532.26	8.92
UTTAR PRADESH	528.09	8.85
ANDHRA PRADESH	509.92	8.54
TELANGANA	328.43	5.50
GUJARAT	322.64	5.40
HARYANA	264.55	4.43
BANGLADESH	225.82	3.78
UTTARAKHAND	198.69	3.33
BIHAR	187.05	3.13
ESSAR STEEL	176.92	2.96
NEPAL(NVVN)	153.39	2.57
JHARKHAND	135.47	2.27
KERALA	105.68	1.77
ODISHA	74.95	1.26
MAHARASHTRA	60.84	1.02
DELHI	59.53	1.00
ASSAM	53.49	0.90
MEGHALAYA	29.42	0.49
SIKKIM	18.00	0.30
GOA	8.04	0.13
MP	7.73	0.13
DVC	6.29	0.11
ARUNACHAL PRADESH	5.61	0.09
KARNATAKA	1.94	0.03
MANIPUR	0.13	0.00
TOTAL	5969.82	100.00
Volume Purchased by top 5 Regional Entities	3545.21	59.39

Table-11: VOLUME OF ELECTRICITY SOLD THROUGH POWER EXCHANGES, APRIL 2019		
Name of the Entity	Volume of Sale (MUs)	% of Volume
MP	571.37	14.15
HIMACHAL PRADESH	373.59	9.25
TEESTA STG3	316.94	7.85
DVC	276.75	6.86
RAJASTHAN	232.85	5.77
TELANGANA	204.80	5.07
UTTAR PRADESH	184.04	4.56
UTTARAKHAND	179.57	4.45
HARYANA	168.27	4.17
MAHARASHTRA	160.63	3.98
SEBICORP	90.70	2.25
BIHAR	87.92	2.18
ASSAM	69.76	1.73
DELHI	64.96	1.61
MB POWER	64.26	1.59
TRN ENERGY	63.72	1.58
GUJARAT	62.83	1.56
THERMAL POWERTECH	47.43	1.17
MARUTI COAL	46.67	1.16
JHARKHAND	44.99	1.11
SPECTRUM	43.83	1.09
KARNATAKA	42.50	1.05
ACBIL	42.22	1.05
AD HYDRO	41.02	1.02
COASTGEN	35.52	0.88
ANDHRA PRADESH	35.02	0.87
ODISHA	34.98	0.87
TRIPURA	34.26	0.85
KARCHAM WANGTOO	33.36	0.83
SIKKIM	32.72	0.81
CHANDIGARH	29.68	0.74
ESSAR POWER	29.02	0.72
DIKCHU HEP	21.88	0.54
DB POWER	20.81	0.52
NLC	19.78	0.49
NEEPCO STATIONS	16.35	0.41
DGEN MEGA POWER	15.97	0.40
GMR KAMALANGA	15.86	0.39
NTPC STATIONS-SR	14.67	0.36
TAMIL NADU	14.28	0.35
NTPC STATIONS-NER	13.78	0.34
J & K	13.22	0.33
ONGC PALATANA	10.90	0.27
CHHATTISGARH	10.63	0.26
MIZORAM	10.04	0.25
WEST BENGAL	9.74	0.24
BRBCL,NABINAGAR	9.28	0.23
SHREE CEMENT	8.52	0.21
ARUNACHAL PRADESH	7.54	0.19

JAYPEE NIGRIE	7.51	0.19
SKS POWER	7.45	0.18
JINDAL POWER	6.05	0.15
KERALA	3.73	0.09
DADRA & NAGAR HAVELI	3.71	0.09
CHUZACHEN HEP	3.54	0.09
LANCO BUDHIL	3.21	0.08
MALANA	2.94	0.07
MANIPUR	2.57	0.06
PUNJAB	2.50	0.06
ADHUNIK POWER LTD	2.46	0.06
TASHIDENG HEP	2.20	0.05
GOA	2.13	0.05
JORETHANG	1.96	0.05
NTPC STATIONS-WR	1.23	0.03
BALCO	1.00	0.02
JINDAL STAGE-II	0.91	0.02
GMR CHATTISGARH	0.88	0.02
PARE HEP	0.44	0.01
EMCO	0.38	0.01
RANGANADI HEP	0.33	0.01
DHARIWAL POWER	0.13	0.00
DOYANG HEP	0.13	0.00
TOTAL	4036.84	100.00
Volume sold by top 5 Regional Entities	1771.49	43.88

Table-12: VOLUME OF ELECTRICITY PURCHASED THROUGH POWER EXCHANGES, APRIL 2019

Name of the Entity	Volume of Purchase (MUs)	% of Volume
GUJARAT	770.25	19.08
MAHARASHTRA	629.46	15.59
TAMIL NADU	435.56	10.79
TELANGANA	316.86	7.85
ODISHA	254.80	6.31
BIHAR	213.28	5.28
DELHI	200.65	4.97
WEST BENGAL	178.54	4.42
CHHATTISGARH	145.83	3.61
KERALA	114.51	2.84
HARYANA	105.47	2.61
ANDHRA PRADESH	92.35	2.29
RAJASTHAN	88.13	2.18
KARNATAKA	86.88	2.15
ASSAM	55.74	1.38
UTTAR PRADESH	49.55	1.23
GOA	44.87	1.11
MEGHALAYA	43.49	1.08
DADRA & NAGAR HAVELI	36.13	0.89
ESSAR STEEL	33.50	0.83
DAMAN AND DIU	30.91	0.77
PUNJAB	24.30	0.60
UTTARAKHAND	24.02	0.60
JHARKHAND	23.34	0.58
MP	18.19	0.45
HIMACHAL PRADESH	13.32	0.33
NAGALAND	2.84	0.07
MANIPUR	1.59	0.04
TRIPURA	1.41	0.03
CHANDIGARH	0.44	0.01
DVC	0.39	0.01
ARUNACHAL PRADESH	0.24	0.01
TOTAL	4036.60	100.00
Volume purchased by top 5 Regional Entities	2406.94	59.63

Table-13: VOLUME OF ELECTRICITY UNDER DRAWAL (EXPORTED) THROUGH DSM, APRIL 2019		
Name of the Entity	Volume of Under drawal (MUs)	% of Volume
NTPC STATIONS-WR	167.61	9.25
GUJARAT	107.56	5.94
UTTAR PRADESH	91.19	5.03
RAJASTHAN	88.62	4.89
TELANGANA	78.61	4.34
TAMIL NADU	67.93	3.75
MP	65.90	3.64
MAHARASHTRA	60.37	3.33
CHHATTISGARH	55.66	3.07
J & K	53.53	2.96
KARNATAKA	52.71	2.91
ANDHRA PRADESH	52.66	2.91
HARYANA	51.91	2.87
WEST BENGAL	50.11	2.77
NTPC STATIONS-NR	48.52	2.68
BIHAR	46.50	2.57
SASAN UMPP	45.53	2.51
NHPC STATIONS	35.09	1.94
DELHI	30.74	1.70
NTPC STATIONS-SR	29.90	1.65
NLC	27.92	1.54
PUNJAB	27.44	1.51
HIMACHAL PRADESH	25.37	1.40
ESSAR STEEL	24.34	1.34
DVC	24.32	1.34
NTPC STATIONS-ER	23.48	1.30
UTTARAKHAND	21.94	1.21
JHARKHAND	19.32	1.07
NEEPCO STATIONS	16.75	0.92
ODISHA	16.34	0.90
BBMB	15.40	0.85
ASSAM	12.15	0.67
OSTRO	11.42	0.63
ARUNACHAL PRADESH	11.18	0.62
NJPC	10.93	0.60
RAP B	10.02	0.55
TRIPURA	9.29	0.51
BANGLADESH	9.00	0.50
RAP C	8.99	0.50
NAPP	7.94	0.44
TEESTA HEP	7.15	0.39
GOA	7.09	0.39
SIKKIM	6.63	0.37
CGPL	6.37	0.35
KERALA	6.26	0.35

RAMPUR HEP	6.21	0.34
KARCHAM WANGTOO	5.36	0.30
MANIPUR	5.31	0.29
JAYPEE NIGRIE	5.18	0.29
RAIL	5.08	0.28
BRBCL,NABINAGAR	5.01	0.28
PONDICHERRY	4.68	0.26
MIZORAM	4.60	0.25
MEGHALAYA	4.58	0.25
CHANDIGARH	4.57	0.25
ACBIL	4.05	0.22
AD HYDRO	3.95	0.22
TEESTA STG3	3.73	0.21
NAGALAND	3.52	0.19
MAITHON POWER LTD	3.48	0.19
RGPL (DABHOL)	3.34	0.18
NETCL VALLUR	3.27	0.18
TRN ENERGY	3.18	0.18
ESSAR POWER	3.16	0.17
DGEN MEGA POWER	3.12	0.17
BARC	3.12	0.17
DADRA & NAGAR HAVELI	3.06	0.17
TEHRI	3.02	0.17
LANKO_AMK	2.81	0.16
MB POWER	2.81	0.16
DIKCHU HEP	2.77	0.15
ACME_RUMS	2.72	0.15
JHABUA POWER_MP	2.66	0.15
NSPCL	2.58	0.14
TASHIDENG HEP	2.52	0.14
KSK MAHANADI	2.51	0.14
NEPAL(NVVN)	2.50	0.14
KOTESHWAR	2.35	0.13
JINDAL POWER	2.33	0.13
RKM POWER	2.11	0.12
MAHINDRA_RUMS	2.10	0.12
JINDAL STAGE-II	2.10	0.12
BALCO	2.08	0.12
EMCO	2.06	0.11
GMR KAMALANGA	1.92	0.11
MTPS II	1.91	0.11
LANCO BUDHIL	1.77	0.10
JORETHANG	1.69	0.09
DAMAN AND DIU	1.62	0.09
NTPL	1.59	0.09
SEMBCORP	1.52	0.08
DB POWER	1.34	0.07
ARINSUM_RUMS	1.31	0.07
IGSTPS	1.25	0.07

THERMAL POWERTECH	1.23	0.07
CHUZACHEN HEP	1.11	0.06
IL&FS	1.09	0.06
NEP	1.02	0.06
ADHUNIK POWER LTD	1.02	0.06
GMR CHATTISGARH	0.99	0.05
RANGIT HEP	0.92	0.05
DAGACHU	0.87	0.05
SHREE CEMENT	0.80	0.04
JITPL	0.74	0.04
MALANA	0.64	0.04
LOKTAK	0.63	0.03
COASTGEN	0.61	0.03
SKS POWER	0.53	0.03
DCPP	0.45	0.02
RANGANADI HEP	0.43	0.02
DHARIWAL POWER	0.43	0.02
NFL	0.24	0.01
DOYANG HEP	0.13	0.01
HVDC CHAMPA	0.09	0.00
MEENAKSHI	0.08	0.00
TOTAL	1811.26	100.00
Volume Exported by top 5 Regional Entities	533.59	29.46

Table-14: VOLUME OF ELECTRICITY OVER DRAWAL (IMPORTED) THROUGH DSM, APRIL 2019		
Name of the Entity	Volume of Over drawal (MUs)	% of Volume
NTPC STATIONS-WR	105.12	6.85
ODISHA	68.49	4.46
RAJASTHAN	65.84	4.29
UTTAR PRADESH	63.45	4.13
NTPC STATIONS-ER	61.31	4.00
TAMIL NADU	55.27	3.60
NTPC STATIONS-NR	55.10	3.59
KARNATAKA	53.00	3.45
HARYANA	43.99	2.87
NTPC STATIONS-SR	42.06	2.74
MP	42.04	2.74
MAHARASHTRA	41.59	2.71
WEST BENGAL	40.87	2.66
PUNJAB	39.19	2.55
KERALA	33.14	2.16
BIHAR	33.04	2.15
ANDHRA PRADESH	32.81	2.14
DVC	32.71	2.13
GUJARAT	26.69	1.74
TELANGANA	25.63	1.67
CHHATTISGARH	23.32	1.52
J & K	23.27	1.52
HIMACHAL PRADESH	22.95	1.50
ASSAM	20.32	1.32
DB POWER	20.18	1.32
NHPC STATIONS	19.96	1.30
ESSAR STEEL	18.79	1.22
JHARKHAND	18.27	1.19
CGPL	17.27	1.13
UTTARAKHAND	16.82	1.10
DAMAN AND DIU	16.55	1.08
DELHI	16.05	1.05
GMR KAMALANGA	15.18	0.99
NLC	14.73	0.96
COASTGEN	13.26	0.86
RGPL (DABHOL)	12.43	0.81
TEESTA STG3	11.80	0.77
GMR CHATTISGARH	11.44	0.75
DADRA & NAGAR HAVELI	10.90	0.71
TRIPURA	9.46	0.62
GOA	9.25	0.60
BRBCL,NABINAGAR	8.74	0.57
EMCO	8.06	0.53
BANGLADESH	6.82	0.44
NETCL VALLUR	6.80	0.44
OSTRO	6.77	0.44
MB POWER	6.76	0.44
KARCHAM WANGTOO	6.61	0.43

BALCO	6.42	0.42
JINDAL STAGE-II	5.96	0.39
MEGHALAYA	5.96	0.39
PONDICHERRY	5.91	0.39
NJPC	5.72	0.37
BBMB	5.55	0.36
MTPS II	5.55	0.36
IGSTPS	5.40	0.35
CHANDIGARH	5.37	0.35
RAP C	4.58	0.30
ESSAR POWER	4.47	0.29
NEPAL(NVVN)	4.15	0.27
JHABUA POWER_MP	3.97	0.26
DGEN MEGA POWER	3.86	0.25
NAPP	3.78	0.25
JORETHANG	3.49	0.23
DAGACHU	3.38	0.22
SIKKIM	3.36	0.22
NAGALAND	3.35	0.22
TASHIDENG HEP	3.28	0.21
MANIPUR	3.22	0.21
THERMAL POWERTECH	3.19	0.21
SASAN UMPP	3.13	0.20
SEMBCORP	3.07	0.20
TEHRI	3.03	0.20
NTPL	2.99	0.19
ADHUNIK POWER LTD	2.97	0.19
NSPCL	2.96	0.19
RAP B	2.93	0.19
MAITHON POWER LTD	2.90	0.19
ARINSUM_RUMS	2.84	0.19
SHREE CEMENT	2.80	0.18
RAIL	2.79	0.18
TEESTA HEP	2.47	0.16
NEEPCO STATIONS	2.38	0.15
ACME_RUMS	2.36	0.15
DIKCHU HEP	2.36	0.15
JITPL	2.21	0.14
AD HYDRO	2.19	0.14
KAPP 3&4	2.15	0.14
IL&FS	2.04	0.13
MAHINDRA_RUMS	1.93	0.13
KOTESHWAR	1.81	0.12
RKM POWER	1.79	0.12
RAMPUR HEP	1.68	0.11
TRN ENERGY	1.68	0.11
MIZORAM	1.68	0.11
SKS POWER	1.57	0.10
ACBIL	1.57	0.10
RANGANADI HEP	1.51	0.10
LANCO BUDHIL	1.31	0.09
KSK MAHANADI	1.30	0.09

CHUZACHEN HEP	1.30	0.08
JAYPEE NIGRIE	1.18	0.08
ARUNACHAL PRADESH	1.15	0.07
LANKO_AMK	1.09	0.07
MEENAKSHI	0.97	0.06
JINDAL POWER	0.96	0.06
DHARIWAL POWER	0.73	0.05
SIMHAPURI	0.63	0.04
LANKO KONDAPALLI	0.60	0.04
RANGIT HEP	0.51	0.03
KORBA WEST POWER	0.51	0.03
NEP	0.50	0.03
DCPP	0.48	0.03
LOKTAK	0.41	0.03
NFL	0.40	0.03
HVDC CHAMPA	0.34	0.02
MALANA	0.18	0.01
DOYANG HEP	0.16	0.01
TOTAL	1534.52	100.00
Volume Imported by top 5 Regional Entities	364.20	23.73

Table-15: TOTAL VOLUME OF NET SHORT-TERM TRANSACTIONS OF ELECTRICITY (REGIONAL ENTITY-WISE), APRIL 2019		
S. No.	Name of the Entity	Total volume of net short-term transactions of electricity*
1	TAMIL NADU	1821.90
2	GUJARAT	809.50
3	WEST BENGAL	659.11
4	MAHARASHTRA	493.00
5	ANDHRA PRADESH	464.33
6	CHHATTISGARH	432.38
7	UTTAR PRADESH	361.87
8	TELANGANA	350.17
9	ODISHA	336.74
10	BIHAR	298.33
11	KERALA	243.34
12	BANGLADESH	223.64
13	ESSAR STEEL	204.88
14	NEPAL(NVVN)	155.04
15	JHARKHAND	112.50
16	DELHI	108.24
17	HARYANA	101.42
18	MEGHALAYA	72.85
19	GOA	52.95
20	ASSAM	47.64
21	DAMAN AND DIU	45.83
22	DADRA & NAGAR HAVELI	40.25
23	UTTARAKHAND	38.02
24	NTPC STATIONS-ER	37.83
25	CGPL	10.90
26	RGPL (DABHOL)	9.09
27	NTPC STATIONS-NR	6.58
28	EMCO	5.62
29	IGSTPS	4.15
30	MTPS II	3.64
31	NETCL VALLUR	3.54
32	KARNATAKA	3.04
33	NAGALAND	2.68
34	KAPP 3&4	2.15
35	ARINSUM_RUMS	1.53
36	NTPL	1.39
37	PONDICHERRY	1.24
38	MEENAKSHI	0.89
39	RANGANADI HEP	0.75
40	SIMHAPURI	0.63
41	LANKO KONDAPALLI	0.60
42	KORBA WEST POWER	0.51
43	NSPCL	0.38
44	HVDC CHAMPA	0.25
45	DHARIWAL POWER	0.17

46	NFL	0.15
47	TEHRI	0.01
48	DOYANG HEP	-0.10
49	MAHINDRA_RUMS	-0.17
50	LOKTAK	-0.21
51	RKM POWER	-0.33
52	ACME_RUMS	-0.35
53	RANGIT HEP	-0.40
54	NEP	-0.52
55	KOTESHWAR	-0.54
56	MAITHON POWER LTD	-0.57
57	KSK MAHANADI	-1.21
58	RAIL	-2.29
59	NTPC STATIONS-SR	-2.52
60	BARC	-3.12
61	MALANA	-3.40
62	LANCO BUDHIL	-3.67
63	NAPP	-4.16
64	RAP C	-4.41
65	RAMPUR HEP	-4.52
66	OSTRO	-4.65
67	TEESTA HEP	-4.68
68	MANIPUR	-5.14
69	NJPC	-5.22
70	JITPL	-5.67
71	RAP B	-7.08
72	LANCO_AMK	-7.13
73	JINDAL POWER	-9.06
74	BBMB	-9.84
75	ARUNACHAL PRADESH	-11.72
76	MIZORAM	-13.68
77	BALCO	-14.03
78	DAGACHU	-14.70
79	NHPC STATIONS	-15.12
80	JORETHANG	-15.57
81	NTPC STATIONS-NER	-16.61
82	TASHIDENG HEP	-16.93
83	CHUZACHEN HEP	-21.26
84	DIKCHU HEP	-22.30
85	GMR KAMALANGA	-25.13
86	COASTGEN	-27.42
87	CHANDIGARH	-28.44
88	NEEPCO STATIONS	-30.72
89	BRBCL,NABINAGAR	-31.77
90	KARCHAM WANGTOO	-32.25
91	NLC	-32.97
92	SIKKIM	-35.99
93	JHABUA POWER_MP	-38.36
94	SASAN UMPP	-42.40

95	AD HYDRO	-42.78
96	SPECTRUM	-43.83
97	ACBIL	-45.44
98	MARUTI COAL	-46.67
99	ONGC PALATANA	-54.06
100	TRIPURA	-54.28
101	NTPC STATIONS-WR	-63.72
102	TRN ENERGY	-65.23
103	DCPP	-66.79
104	SEMBCORP	-89.15
105	SKS POWER	-93.55
106	J & K	-102.48
107	ADHUNIK POWER LTD	-132.43
108	SHREE CEMENT	-134.23
109	MB POWER	-152.00
110	JINDAL STAGE-II	-174.47
111	DB POWER	-214.41
112	DGEN MEGA POWER	-263.94
113	RAJASTHAN	-273.15
114	GMR CHATTISGARH	-281.84
115	TEESTA STG3	-309.94
116	DVC	-310.18
117	JAYPEE NIGRIE	-316.98
118	IL&FS	-360.22
119	HIMACHAL PRADESH	-426.36
120	ESSAR POWER	-480.62
121	THERMAL POWERTECH	-755.82
122	PUNJAB	-913.21
123	MP	-1037.43
* 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, APRIL 2019			
	Details of Congestion	IEX	PXIL
A	Unconstrained Cleared Volume* (MUs)	4073.25	33.91
B	Actual Cleared Volume and hence scheduled (MUs)	4008.50	31.43
C	Volume of electricity that could not be cleared and hence not scheduled because of congestion (MUs) (A-B)	64.75	2.48
D	Volume of electricity that could not be cleared as % to Unconstrained Cleared Volume	1.59%	7.31%
E	Percentage of the time congestion occurred during the month (Number of hours congestion occurred/Total number of hours in the month)	16.35%	4.69%
F	Congestion occurrence (%) time block wise		
	0.00 - 6.00 hours	20.81%	17.78%
	6.00 - 12.00 hours	15.07%	22.96%
	12.00 - 18.00 hours	9.98%	20.74%
	18.00 - 24.00 hours	54.14%	38.52%
<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), APRIL 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-Apr-19	123.22	84.20	142.68	2.40	57.16	3543.44
2-Apr-19	112.19	84.02	142.40	4.80	61.52	3672.64
3-Apr-19	109.39	82.82	155.64	3.79	52.99	3742.91
4-Apr-19	113.88	82.38	167.21	3.79	55.47	3763.58
5-Apr-19	116.12	84.25	157.39	3.79	56.81	3678.83
6-Apr-19	125.03	85.19	132.13	3.33	62.22	3602.30
7-Apr-19	124.24	75.79	109.64	2.40	64.59	3350.52
8-Apr-19	122.35	83.68	109.45	2.40	52.05	3523.32
9-Apr-19	118.16	84.12	118.37	2.60	51.54	3574.04
10-Apr-19	120.95	82.19	124.62	0.19	48.66	3682.76
11-Apr-19	128.13	81.75	131.20	0.20	49.35	3729.66
12-Apr-19	125.93	82.10	129.99	0.21	53.54	3756.51
13-Apr-19	124.07	81.97	129.93	0.21	57.10	3715.31
14-Apr-19	120.75	75.83	125.17	0.08	50.14	3601.22
15-Apr-19	131.67	83.20	133.08	0.16	57.05	3661.14
16-Apr-19	127.68	83.00	120.08	0.17	69.94	3478.74
17-Apr-19	119.78	78.80	143.64	0.16	58.66	3320.50
18-Apr-19	124.54	72.18	140.82	0.08	49.81	3365.28
19-Apr-19	119.28	76.12	138.20	0.08	51.77	3420.07
20-Apr-19	120.43	76.08	130.08	0.09	50.01	3494.03
21-Apr-19	112.19	75.16	105.98	0.07	51.92	3389.20
22-Apr-19	108.37	85.10	122.63	0.00	51.50	3551.15
23-Apr-19	120.52	85.13	138.23	0.03	57.78	3611.42
24-Apr-19	115.61	85.04	143.54	0.06	57.36	3736.27
25-Apr-19	113.33	82.08	138.69	0.09	55.21	3877.96
26-Apr-19	107.78	83.84	148.09	0.08	56.39	3915.32
27-Apr-19	108.87	82.41	132.39	0.00	55.07	3871.89
28-Apr-19	101.96	75.12	114.75	0.05	60.67	3736.60
29-Apr-19	106.90	83.15	139.15	0.06	60.37	3840.80
30-Apr-19	105.53	84.29	140.25	0.06	61.55	3722.50
Total	3528.84	2440.98	4005.41	31.43	1678.20	108929.91
<i>Source: NLDC</i>						
<i>* Gross Electricity Generation excluding electricity generation from renewable and captive power plants.</i>						
<i>** The volume of bilateral through PXs represents the volume through term-ahead contracts.</i>						
<i># Area Clearing Volume represents the scheduled volume of all the bid areas.</i>						

Table-18: PRICE OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (DAY-WISE) (₹/kWh), APRIL 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-Apr-19	2.77	9.68	3.62	3.70	3.70	3.70	0.00	8.00	3.44
2-Apr-19	2.82	10.46	3.44	3.70	3.70	3.70	0.00	8.00	4.28
3-Apr-19	3.00	5.51	3.55	3.65	3.65	3.65	0.00	8.00	4.73
4-Apr-19	3.11	7.12	3.84	3.72	3.72	3.72	0.00	7.28	3.51
5-Apr-19	3.09	11.07	3.99	3.85	3.85	3.85	0.00	7.79	3.08
6-Apr-19	3.03	11.03	3.57	3.85	3.85	3.85	0.00	7.02	2.13
7-Apr-19	2.81	4.56	3.36	3.60	3.60	3.60	0.00	8.00	2.41
8-Apr-19	2.75	11.84	3.49	3.50	3.50	3.50	0.00	7.28	3.32
9-Apr-19	2.75	5.01	3.28	3.68	3.68	3.68	0.00	8.00	3.46
10-Apr-19	2.75	5.10	3.28	3.05	4.15	3.59	0.00	8.00	4.20
11-Apr-19	2.76	5.00	3.40	3.05	4.15	3.61	0.00	7.71	3.98
12-Apr-19	2.92	5.45	3.73	3.05	4.15	3.63	0.00	8.00	4.08
13-Apr-19	2.92	4.39	3.46	3.05	4.22	3.67	0.00	8.00	3.25
14-Apr-19	2.78	4.15	3.37	3.05	4.22	3.74	0.00	8.00	2.69
15-Apr-19	2.65	4.50	3.31	3.05	4.24	3.64	0.00	6.81	2.46
16-Apr-19	2.54	3.75	3.07	3.05	4.24	3.67	0.00	8.00	2.46
17-Apr-19	2.58	4.39	3.20	3.05	4.24	3.64	0.00	6.81	2.44
18-Apr-19	2.87	3.79	3.13	4.15	4.20	4.18	0.00	7.39	2.64
19-Apr-19	2.68	5.60	3.18	4.05	4.12	4.09	0.00	7.71	2.99
20-Apr-19	2.60	6.37	3.20	4.00	4.20	4.09	0.00	7.72	3.50
21-Apr-19	2.10	3.29	2.83	4.00	4.19	4.09	0.00	8.00	2.94
22-Apr-19	1.80	3.59	2.93	0.00	0.00	0.00	0.00	8.00	3.07
23-Apr-19	2.58	4.23	3.13	4.01	4.05	4.03	0.00	8.00	2.35
24-Apr-19	2.58	4.25	3.07	4.00	4.10	4.07	0.00	8.00	3.13
25-Apr-19	2.59	3.95	3.12	3.93	4.10	4.03	0.00	8.00	3.27
26-Apr-19	2.51	4.49	3.38	2.01	4.11	3.04	0.00	8.00	2.64
27-Apr-19	2.40	4.58	3.31	0.00	0.00	0.00	0.00	8.00	3.18
28-Apr-19	1.94	3.72	2.83	2.94	4.05	3.49	0.00	6.35	1.69
29-Apr-19	2.08	4.67	3.18	2.95	4.12	3.52	0.00	8.00	2.00
30-Apr-19	2.11	4.44	3.15	2.95	4.13	3.53	0.00	5.84	1.60
	1.80#	11.84#	3.33	2.01#	4.24#	3.71	0.00#	8.00#	3.03
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), APRIL 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	946.76	0.00	-946.76	2.50	24.30	21.80	39.19	27.44	11.75	-913.21
HARYANA	92.40	264.55	172.15	168.27	105.47	-62.81	43.99	51.91	-7.92	101.42
RAJASTHAN	105.66	0.00	-105.66	232.85	88.13	-144.72	65.84	88.62	-22.78	-273.15
DELHI	72.30	59.53	-12.76	64.96	200.65	135.69	16.05	30.74	-14.69	108.24
UP	3.98	528.09	524.10	184.04	49.55	-134.49	63.45	91.19	-27.75	361.87
UTTARAKHAND	0.00	198.69	198.69	179.57	24.02	-155.55	16.82	21.94	-5.12	38.02
HP	63.68	0.00	-63.68	373.59	13.32	-360.27	22.95	25.37	-2.41	-426.36
J & K	59.01	0.00	-59.01	13.22	0.00	-13.22	23.27	53.53	-30.26	-102.48
CHANDIGARH	0.00	0.00	0.00	29.68	0.44	-29.24	5.37	4.57	0.81	-28.44
MP	468.11	7.73	-460.39	571.37	18.19	-553.18	42.04	65.90	-23.86	-1037.43
MAHARASHTRA	17.89	60.84	42.95	160.63	629.46	468.83	41.59	60.37	-18.78	493.00
GUJARAT	139.70	322.64	182.94	62.83	770.25	707.42	26.69	107.56	-80.87	809.50
CHHATTISGARH	202.74	532.26	329.52	10.63	145.83	135.20	23.32	55.66	-32.34	432.38
GOA	0.00	8.04	8.04	2.13	44.87	42.75	9.25	7.09	2.16	52.95
DAMAN AND DIU	0.00	0.00	0.00	0.00	30.91	30.91	16.55	1.62	14.93	45.83
DADRA & NAGAR	0.00	0.00	0.00	3.71	36.13	32.41	10.90	3.06	7.84	40.25
ANDHRA P	83.07	509.92	426.85	35.02	92.35	57.33	32.81	52.66	-19.85	464.33
KARNATAKA	43.57	1.94	-41.63	42.50	86.88	44.38	53.00	52.71	0.29	3.04
KERALA	0.00	105.68	105.68	3.73	114.51	110.78	33.14	6.26	26.88	243.34
TAMIL NADU	2.96	1416.23	1413.27	14.28	435.56	421.29	55.27	67.93	-12.66	1821.90
PONDICHERRY	0.00	0.00	0.00	0.00	0.00	0.00	5.91	4.68	1.24	1.24
TELANGANA	37.34	328.43	291.09	204.80	316.86	112.06	25.63	78.61	-52.99	350.17
WEST BENGAL	59.17	558.71	499.54	9.74	178.54	168.81	40.87	50.11	-9.24	659.11
ODISHA	10.18	74.95	64.77	34.98	254.80	219.82	68.49	16.34	52.14	336.74
BIHAR	0.63	187.05	186.43	87.92	213.28	125.36	33.04	46.50	-13.45	298.33
JHARKHAND	0.27	135.47	135.20	44.99	23.34	-21.66	18.27	19.32	-1.05	112.50
SIKKIM	18.00	18.00	0.00	32.72	0.00	-32.72	3.36	6.63	-3.27	-35.99
DVC	48.50	6.29	-42.21	276.75	0.39	-276.36	32.71	24.32	8.40	-310.18
ARUNACHAL P	0.00	5.61	5.61	7.54	0.24	-7.30	1.15	11.18	-10.03	-11.72
ASSAM	0.00	53.49	53.49	69.76	55.74	-14.02	20.32	12.15	8.16	47.64
MANIPUR	2.20	0.13	-2.07	2.57	1.59	-0.98	3.22	5.31	-2.09	-5.14
MEGHALAYA	1.44	29.42	27.98	0.00	43.49	43.49	5.96	4.58	1.38	72.85
MIZORAM	0.72	0.00	-0.72	10.04	0.00	-10.04	1.68	4.60	-2.93	-13.68
NAGALAND	0.00	0.00	0.00	0.00	2.84	2.84	3.35	3.52	-0.16	2.68
TRIPURA	21.59	0.00	-21.59	34.26	1.41	-32.86	9.46	9.29	0.17	-54.28
NTPC -NR	0.00	0.00	0.00	0.00	0.00	0.00	55.10	48.52	6.58	6.58
NHPC STN	0.00	0.00	0.00	0.00	0.00	0.00	19.96	35.09	-15.12	-15.12
NFL	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.24	0.15	0.15
RAIL	0.00	0.00	0.00	0.00	0.00	0.00	2.79	5.08	-2.29	-2.29
NEP	0.00	0.00	0.00	0.00	0.00	0.00	0.50	1.02	-0.52	-0.52
NAPP	0.00	0.00	0.00	0.00	0.00	0.00	3.78	7.94	-4.16	-4.16
RAP B	0.00	0.00	0.00	0.00	0.00	0.00	2.93	10.02	-7.08	-7.08
NJPC	0.00	0.00	0.00	0.00	0.00	0.00	5.72	10.93	-5.22	-5.22
TEHRI	0.00	0.00	0.00	0.00	0.00	0.00	3.03	3.02	0.01	0.01
BBMB	0.00	0.00	0.00	0.00	0.00	0.00	5.55	15.40	-9.84	-9.84
RAP C	0.00	0.00	0.00	0.00	0.00	0.00	4.58	8.99	-4.41	-4.41
AD HYDRO	0.00	0.00	0.00	41.02	0.00	-41.02	2.19	3.95	-1.76	-42.78
IGSTPS	0.00	0.00	0.00	0.00	0.00	0.00	5.40	1.25	4.15	4.15
KOTESHWAR	0.00	0.00	0.00	0.00	0.00	0.00	1.81	2.35	-0.54	-0.54
KARCHAM WANG	0.14	0.00	-0.14	33.36	0.00	-33.36	6.61	5.36	1.25	-32.25

SHREE CEMENT	127.72	0.00	-127.72	8.52	0.00	-8.52	2.80	0.80	2.01	-134.23
LANCO BUDHIL	0.00	0.00	0.00	3.21	0.00	-3.21	1.31	1.77	-0.46	-3.67
RAMPUR HEP	0.00	0.00	0.00	0.00	0.00	0.00	1.68	6.21	-4.52	-4.52
MALANA	0.00	0.00	0.00	2.94	0.00	-2.94	0.18	0.64	-0.46	-3.40
NTPC -WR	0.00	0.00	0.00	1.23	0.00	-1.23	105.12	167.61	-62.49	-63.72
JINDAL POWER	1.62	0.00	-1.62	6.05	0.00	-6.05	0.96	2.33	-1.38	-9.06
LANCO_AMK	5.40	0.00	-5.40	0.00	0.00	0.00	1.09	2.81	-1.72	-7.13
NSPCL	0.00	0.00	0.00	0.00	0.00	0.00	2.96	2.58	0.38	0.38
ACBIL	0.74	0.00	-0.74	42.22	0.00	-42.22	1.57	4.05	-2.49	-45.44
BALCO	17.36	0.00	-17.36	1.00	0.00	-1.00	6.42	2.08	4.33	-14.03
RGPPL (DABHOL)	0.00	0.00	0.00	0.00	0.00	0.00	12.43	3.34	9.09	9.09
CGPL	0.00	0.00	0.00	0.00	0.00	0.00	17.27	6.37	10.90	10.90
DCPP	66.82	0.00	-66.82	0.00	0.00	0.00	0.48	0.45	0.03	-66.79
EMCO	0.00	0.00	0.00	0.38	0.00	-0.38	8.06	2.06	6.00	5.62
ESSAR STEEL	0.00	176.92	176.92	0.00	33.50	33.50	18.79	24.34	-5.54	204.88
KSK MAHANADI	0.00	0.00	0.00	0.00	0.00	0.00	1.30	2.51	-1.21	-1.21
ESSAR POWER	452.92	0.00	-452.92	29.02	0.00	-29.02	4.47	3.16	1.32	-480.62
JINDAL STAGE-II	177.43	0.00	-177.43	0.91	0.00	-0.91	5.96	2.10	3.86	-174.47
DB POWER	212.44	0.00	-212.44	20.81	0.00	-20.81	20.18	1.34	18.84	-214.41
DHARIWAL POWER	0.00	0.00	0.00	0.13	0.00	-0.13	0.73	0.43	0.30	0.17
JAYPEE NIGRIE	305.47	0.00	-305.47	7.51	0.00	-7.51	1.18	5.18	-4.00	-316.98
DGEN MEGA P	248.70	0.00	-248.70	15.97	0.00	-15.97	3.86	3.12	0.74	-263.94
GMR CHATTISGAH	291.41	0.00	-291.41	0.88	0.00	-0.88	11.44	0.99	10.45	-281.84
KORBA WEST P	0.00	0.00	0.00	0.00	0.00	0.00	0.51	0.00	0.51	0.51
MB POWER	91.69	0.00	-91.69	64.26	0.00	-64.26	6.76	2.81	3.95	-152.00
MARUTI COAL	0.00	0.00	0.00	46.67	0.00	-46.67	0.00	0.00	0.00	-46.67
SPECTRUM	0.00	0.00	0.00	43.83	0.00	-43.83	0.00	0.00	0.00	-43.83
JHABUA POWER	39.67	0.00	-39.67	0.00	0.00	0.00	3.97	2.66	1.31	-38.36
SASAN UMPP	0.00	0.00	0.00	0.00	0.00	0.00	3.13	45.53	-42.40	-42.40
TRN ENERGY	0.00	0.00	0.00	63.72	0.00	-63.72	1.68	3.18	-1.51	-65.23
RKM POWER	0.00	0.00	0.00	0.00	0.00	0.00	1.79	2.11	-0.33	-0.33
SKS POWER	87.13	0.00	-87.13	7.45	0.00	-7.45	1.57	0.53	1.04	-93.55
BARC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.12	-3.12	-3.12
KAPP 3&4	0.00	0.00	0.00	0.00	0.00	0.00	2.15	0.00	2.15	2.15
HVDC CHAMPA	0.00	0.00	0.00	0.00	0.00	0.00	0.34	0.09	0.25	0.25
MAHINDRA_RUMS	0.00	0.00	0.00	0.00	0.00	0.00	1.93	2.10	-0.17	-0.17
ARINSUM_RUMS	0.00	0.00	0.00	0.00	0.00	0.00	2.84	1.31	1.53	1.53
OSTRO	0.00	0.00	0.00	0.00	0.00	0.00	6.77	11.42	-4.65	-4.65
ACME_RUMS	0.00	0.00	0.00	0.00	0.00	0.00	2.36	2.72	-0.35	-0.35
NTPC -SR	0.00	0.00	0.00	14.67	0.00	-14.67	42.06	29.90	12.15	-2.52
LANCO KONDAPALLE	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	0.63	0.00	0.63	0.63
MEENAKSHI	0.00	0.00	0.00	0.00	0.00	0.00	0.97	0.08	0.89	0.89
COASTGEN	4.54	0.00	-4.54	35.52	0.00	-35.52	13.26	0.61	12.65	-27.42
THERMAL POWER	710.35	0.00	-710.35	47.43	0.00	-47.43	3.19	1.23	1.96	-755.82
IL&FS	361.17	0.00	-361.17	0.00	0.00	0.00	2.04	1.09	0.95	-360.22
NLC	0.00	0.00	0.00	19.78	0.00	-19.78	14.73	27.92	-13.19	-32.97
SEMBCORP	0.00	0.00	0.00	90.70	0.00	-90.70	3.07	1.52	1.55	-89.15
NETCL VALLUR	0.00	0.00	0.00	0.00	0.00	0.00	6.80	3.27	3.54	3.54
NTPL	0.00	0.00	0.00	0.00	0.00	0.00	2.99	1.59	1.39	1.39
NTPC -ER	0.00	0.00	0.00	0.00	0.00	0.00	61.31	23.48	37.83	37.83
MAITHON POWER	0.00	0.00	0.00	0.00	0.00	0.00	2.90	3.48	-0.57	-0.57
ADHUNIK POWER	131.92	0.00	-131.92	2.46	0.00	-2.46	2.97	1.02	1.95	-132.43
CHUZACHEN HEP	17.91	0.00	-17.91	3.54	0.00	-3.54	1.30	1.11	0.19	-21.26
RANGIT HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.51	0.92	-0.40	-0.40
GMR KAMALANGA	22.52	0.00	-22.52	15.86	0.00	-15.86	15.18	1.92	13.25	-25.13
JITPL	7.14	0.00	-7.14	0.00	0.00	0.00	2.21	0.74	1.47	-5.67

TEESTA HEP	0.00	0.00	0.00	0.00	0.00	0.00	2.47	7.15	-4.68	-4.68
DAGACHU	17.21	0.00	-17.21	0.00	0.00	0.00	3.38	0.87	2.51	-14.70
JORETHANG	15.40	0.00	-15.40	1.96	0.00	-1.96	3.49	1.69	1.79	-15.57
NEPAL(NVVN)	0.00	153.39	153.39	0.00	0.00	0.00	4.15	2.50	1.65	155.04
BANGLADESH	0.00	225.82	225.82	0.00	0.00	0.00	6.82	9.00	-2.18	223.64
TEESTA STG3	1.08	0.00	-1.08	316.94	0.00	-316.94	11.80	3.73	8.07	-309.94
DIKCHU HEP	0.00	0.00	0.00	21.88	0.00	-21.88	2.36	2.77	-0.41	-22.30
TASHIDENG HEP	15.48	0.00	-15.48	2.20	0.00	-2.20	3.28	2.52	0.75	-16.93
BRBCL,NABINAGA	26.22	0.00	-26.22	9.28	0.00	-9.28	8.74	5.01	3.73	-31.77
MTPS II	0.00	0.00	0.00	0.00	0.00	0.00	5.55	1.91	3.64	3.64
NTPC-NER	2.83	0.00	-2.83	13.78	0.00	-13.78	0.00	0.00	0.00	-16.61
NEEPCO STN	0.00	0.00	0.00	16.35	0.00	-16.35	2.38	16.75	-14.37	-30.72
RANGANADI HEP	0.00	0.00	0.00	0.33	0.00	-0.33	1.51	0.43	1.08	0.75
DOYANG HEP	0.00	0.00	0.00	0.13	0.00	-0.13	0.16	0.13	0.03	-0.10
ONGC PALATANA	43.16	0.00	-43.16	10.90	0.00	-10.90	0.00	0.00	0.00	-54.06
LOKTAK	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.63	-0.21	-0.21
PARE HEP	0.00	0.00	0.00	0.44	0.00	-0.44	0.00	0.00	0.00	-0.44
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, power exchange and DSM										

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



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

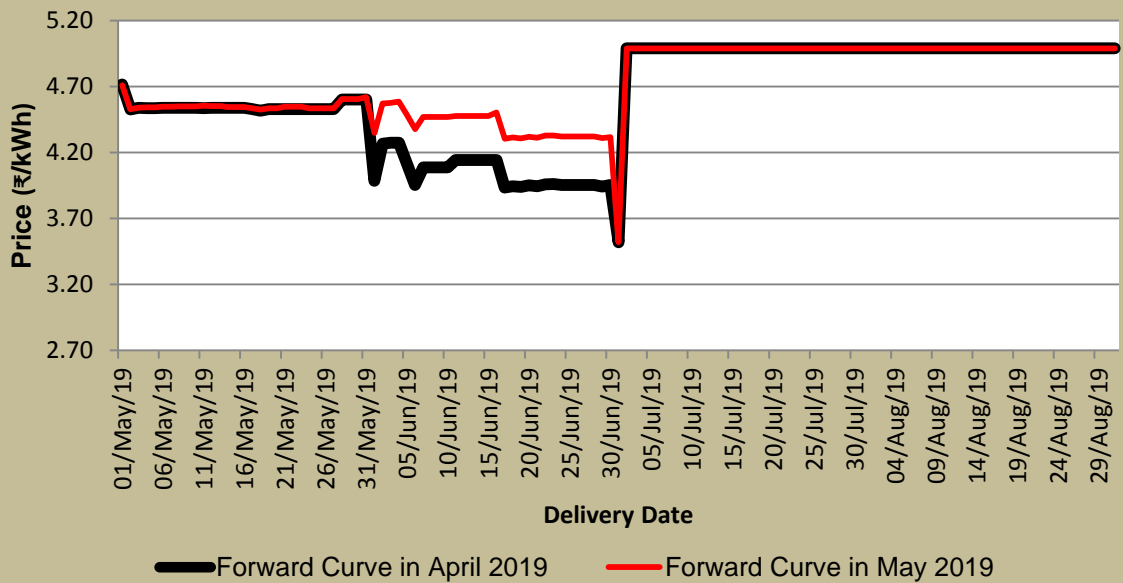


Table-20 : VOLUME AND PRICE OF RENEWABLE ENERGY CERTIFICATES (RECs) TRANSACTED THROUGH POWER EXCHANGES, APRIL 2019					
Sr.No.	Details of REC Transactions	IEX		PXIL	
		Solar	Non-Solar	Solar	Non Solar
A	Volume of Buy Bid	361606	697502	197645	340999
B	Volume of Sell Bid	142148	351915	78637	132223
C	Ratio of Buy Bid to Sell Bid Volume	2.54	1.98	2.51	2.58
D	Market Clearing Volume (MWh)	62853	161949	20125	123975
E	Weighted average Market Clearing Price (₹/MWh)	2000	1300	1800	1500

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	<i>Floor Price (₹/MWh)</i>	<i>Forbearance Price (₹/MWh)</i>
<i>Solar</i>	<i>1000.00</i>	<i>2400.00</i>
<i>Non-Solar</i>	<i>1000.00</i>	<i>3000.00</i>