

Monthly Report on Short-term Transactions of Electricity in India

March, 2019



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



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Abbreviations

Abbreviation	Expanded Version
ACBIL	ACB (India) Limited
ACP	Area Clearing Price
ACV	Area Clearing Volume
Adani HVDC	Adani Power Limited (High Voltage Direct Line Current Line)
AD HYDRO	AD Hydro Power Limited
BALCO	Bharat Aluminum Company Limited
BRBCL	Bhartiya Rail Bijlee Company Limited
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CGPL	Coastal Gujarat Power Limited
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
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
GMR CHHATTISGARH	GMR Chhattisgarh Energy Limited
GMR KAMALANGA	GMR Kamalanga Energy Ltd.
IEX	Indian Energy Exchange Limited
IL&FS	Infrastructure Leasing & Financial Services Limited
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
KARCHAM WANGTOO	Karcham Wangtoo H.E. Project
KORBA WEST POWER	Korba West Power Company Limited
KSK MAHANADI	KSK Mahanadi Power Ltd
LANCO BUDHIL	Lanco Budhil Hydro Power Private Limited
LANKOAMK	Lanco Amarkantak Power Private Limited
LANKOKONDAPALLY	Lanco Kondapally Power Private Limited
LOKTAK	Loktak Power 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
MUs	Million Units
NEEPCO	North Eastern Electric Power Corporation Limited
NHPC STATIONS	National Hydro Electric Power Corporation Ltd. Stations
NLC	Neyveli Lignite Corporation Limited
NTPC STATIONS	National Thermal Power Corporation Ltd. Stations
NJPC	Nathpa Jhakri Hydroelectric Power Station
NLDC	National Load Dispatch Centre
NSPCL	NTPC - SAIL Power Company Private Limited
NVVN	NTPC Vidyut Vyapar Nigam Limited
NTECL Vallur	NTPC Tamilnadu Energy Company Limited Vallur
ONGC Platana	ONGC Tripura Power Company
OTC	Over The Counter
PX	Power Exchange
PXIL	Power Exchange India Limited
RANGIT HEP	Rangit Hydroelectric power project
REC	Renewable Energy Certificate
RGPPL	Ratnagiri Gas and Power Private Limited
RLDC	Regional Load Dispatch Centre
RTC	Round The Clock
Sasan UMPP	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 Chhatisgarh Limited
SPECTRUM	Spectrum Power Generation Ltd
TEESTA STG3	Teesta Stage 3 Hydro Power Project
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 & intra-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 **March, 2019** are as under:

I: Volume of Short-term Transactions of Electricity

During March 2019, total electricity generation excluding generation from renewable and captive power plants in India was 106759.56 MUs (Table-1).

Of the total electricity generation, 10910.45 MUs (10.22%) was transacted through short-term, comprising of 5993.83 MUs (5.61%) through bilateral (through traders and term-ahead contracts on power exchanges and directly between distribution companies), followed by 3366.23 MUs (3.15%) through day ahead collective transactions on power exchanges and 1550.39 MUs (1.45%) through DSM (Table-1 & Figure-2).

Of the total short-term transactions, bilateral constitutes 54.94% (38.76% through traders and term-ahead contracts on power exchanges and 16.18% directly between distribution companies) followed by 30.85% through day ahead collective transactions on power exchanges and 14.21% 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 37 trading licensees as on March, 2019. In March 2019, 23 trading licensees were engaged in short term trading. Top 5 trading licensees had a share of 75.73% in the total volume traded by all the licensees. These are PTC India Ltd., Manikaran Power Ltd., NTPC Vidyut Vyapar Nigam Ltd., Arunachal Pradesh Power Corporation (P) Ltd and Kreate Energy (I) Pvt. 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 0.1531 for the month of March, 2019, which indicates moderate concentration of market power (Table-2).

The volume of electricity transacted through IEX and PXIL in the day ahead market were 3356.08 MUs and 10.15 MUs respectively. The volume of total buy bids and sell bids was 4444.28 MUs and 7765.38 MUs respectively in IEX while the same was 12.00 MUs and 96.50 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 246.34 MUs and 449.45 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, ₹6.65/kWh and ₹4.86/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 ₹4.85/kWh, ₹5.50/kWh and ₹4.93/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, ₹10.17/kWh and ₹3.28/kWh respectively in IEX and it were ₹3.05/kWh, ₹4.50/kWh and ₹3.72/kWh respectively in PXIL (Table-5).

The price of electricity transacted through IEX and PXIL in the term-ahead market was ₹4.03/kWh and ₹4.30/kWh respectively (Table-6 and Table-7).

(iii) Price of electricity transacted through DSM: The average deviation settlement price was ₹6.10/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: Volume of Short-term Transactions of Electricity (Regional Entity¹-Wise)

Of the total bilateral transactions, top 5 regional entities sold 55.33% of the volume, and these were Punjab, Sembcorp Gayatri Power Ltd., Haryana, Delhi and Madhya Pradesh. Top 5 regional entities purchased 56.84% of the volume, and these were Tamil Nadu, Andhra Pradesh, Chhattisgarh, Telangana and West Bengal (Table-9& 10).

Of the total power exchange transactions, top 5 regional entities sold 46.03% of the volume, and these were Madhya Pradesh, Damodar Valley Corporation, Teesta Stage 3 Hydro Power Project, Rajasthan and Delhi. Top 5 regional entities purchased 59.85% of the volume, and these were Telangana, Gujarat, Maharashtra, Tamil Nadu and Odisha (Table-11 & 12).

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.

Of the total DSM transactions, top 5 regional entities under drew 31.69% of the volume, and these were NTPC Station (Northern Region), NTPC Station (Western Region), Gujarat, Rajasthan and Uttar Pradesh (Table-13). Top 5 regional entities overdrew 25.54% of the volume, and these were NTPC Station (Western Region), Rajasthan, Karnataka, 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, Sembcorp Gayatri Power Ltd., Punjab, Haryana and Delhi. Top 5 electricity purchasing regional entities were Tamil Nadu, Telangana, Andhra Pradesh, Gujarat and Chhattisgarh.

IV: 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.

In the month of March 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

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 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.

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 3.44% and 0.47% of the unconstrained cleared volume respectively. In terms of time, congestion occurred was 35.62% and 1.08% respectively in IEX and PXIL (Table-16).

V: Bilateral Contracts executed by Traders

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

(i) Duration of bilateral contracts: During April 2019, a total of 114 bilateral contracts (excluding banking/swap contracts) have been executed by traders for the volume of 1665.44 MUs. Figure-7 shows the percentage of contracts categorized according to the period of power supply. It can be observed from the figure that 63.16% of the bilateral contracts were executed for duration of up to one week, 35.96% 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 0.88% of the contracts were executed for duration of more than three months and up to twelve months.

During the month, 23 banking/swapping bilateral contracts were also executed for the volume of 694.55 MUs.

(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 April, 2019 to 31st July, 2019 based on the bilateral contracts⁴ executed till April, 2019.

⁴Excluding Banking/Swapping contracts

Forward curves have been drawn for the contracts executed in March, 2019 and April, 2019 for the purpose of comparison. It is observed that forward contract prices are higher for the contracts executed in April, 2019 compared to the contracts executed in March, 2019 during the period 1st June 2019 – 31st July 2019.

VI: 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 April, 2011.

The details of REC transactions for the month of March, 2019 are shown in Table-20. The market clearing volume of solar RECs transacted on IEX and PXIL were 217231 and 129152 respectively and the market clearing price of these RECs was ₹2000/MWh in IEX and ₹1700/MWh in PXIL. Market clearing volume of non-solar RECs transacted on IEX and PXIL were 716929 and 114449 respectively and the weighted average market clearing price of these RECs was ₹1500/MWh in IEX and ₹1395/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 2.25 and 1.15 in IEX and PXIL respectively. For non-solar RECs, the ratio of buy bids to sell bids was 1.37 and 0.39 in IEX and PXIL respectively.

VII: Inferences:

- The percentage of short-term transactions of electricity to total electricity generation was 10.22%.
- Of the total short-term transactions, bilateral constitutes 54.94% (38.76% through traders and term-ahead contracts on power exchanges and 16.18% directly between distribution companies) followed by 30.85% through day ahead collective transactions on power exchanges and 14.21% through DSM
- Top 5 trading licensees had a share of 75.73% 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 0.1531, indicating moderate concentration of market power.
- The weighted average price of electricity transacted through trading licensees was ₹4.86/kWh. The weighted average price of electricity transacted through IEX and PXIL were ₹3.28/kWh and ₹3.72/kWh respectively.
- The average price of electricity transacted through DSM was ₹6.10/kWh.
- Top 5 electricity selling regional entities were Madhya Pradesh, Sembcorp Gayatri Power Ltd., Punjab, Haryana and Delhi. Top 5 electricity purchasing regional entities were Tamil Nadu, Telangana, Andhra Pradesh, Gujarat and Chhattisgarh.
- During the month, the volume of electricity that could not be cleared in IEX and PXIL due to congestion was 3.44% and 0.47% of the unconstrained cleared volume respectively. In terms of time, congestion occurred was 35.62% and 1.08% respectively in IEX and PXIL.
- In April 2019, 63.16% of the bilateral contracts were executed for duration of up to one week, 35.96% 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 0.88% 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 April, 2019 to 31st July, 2019 based on the bilateral contracts⁵ executed till April, 2019 shows that forward contract prices are higher for the contracts executed in April, 2019 compared to the contracts executed in March, 2019 during the period 1st June 2019 – 31st July 2019.
- The market clearing volume of solar RECs transacted on IEX and PXIL were 217231 and 129152 respectively and the market clearing price of these RECs was ₹2000/MWh in IEX and ₹1700/MWh in PXIL. Market clearing volume of non-solar RECs transacted on IEX and PXIL were 716929 and 114449 respectively and the weighted average market clearing price of these RECs was ₹1500/MWh in IEX and ₹1395/MWh in PXIL.

⁵*Excluding Banking/Swapping contracts*

Table-1: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (ALL INDIA), MARCH 2019				
Sr.No	Short-term transactions	Volume (MUs)	% to Volume of short-term transactions	% to Total Generation
1	Bilateral	5993.83	54.94	5.61
	(i) Through Traders and PXs	4228.37	38.76	3.96
	(ii) Direct	1765.46	16.18	1.65
2	Through Power Exchanges	3366.23	30.85	3.15
	(i) IEX	3356.08	30.76	3.14
	(ii) PXIL	10.15	0.09	0.01
3	Through DSM	1550.39	14.21	1.45
	Total	10910.45	-	10.22
	Total Generation	106759.56	-	-

Source: NLDC

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

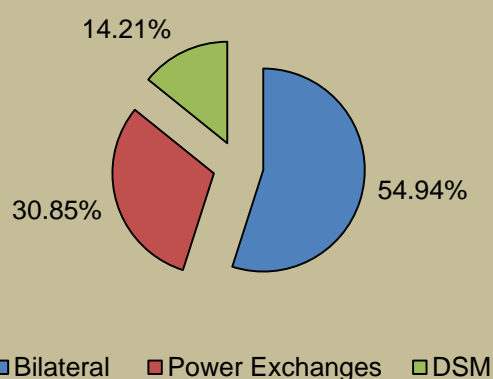
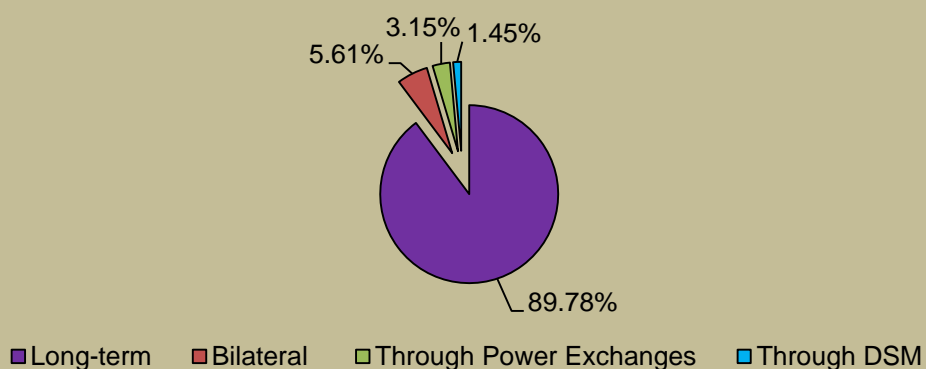


Figure-2: Volume of Various Kinds of Electricity Transactions in Total Electricity Generation, March 2019



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

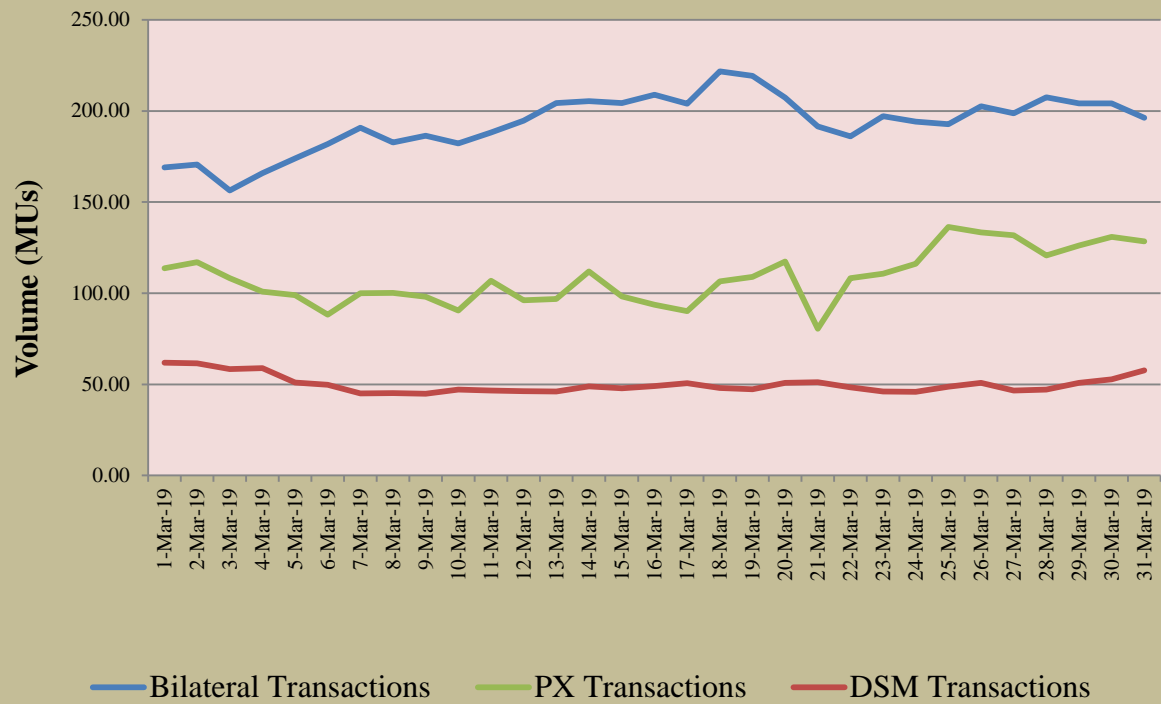


Table-2: PERCENTAGE SHARE OF ELECTRICITY TRANSACTED BY TRADING LICENSEES, MARCH 2019			
Sr.No	Name of the Trading Licensee	% Share in total Volume transacted by Trading Licensees	Herfindahl-Hirschman Index
1	PTC India Ltd.	30.33	0.0920
2	Manikaran Power Ltd.	12.94	0.0168
3	NTPC Vidyut Vyapar Nigam Ltd.	11.37	0.0129
4	Arunachal Pradesh Power Corporation (P) Ltd	11.06	0.0122
5	Kreate Energy (I) Pvt. Ltd.	10.02	0.0100
6	GMR Energy Trading Ltd.	7.04	0.0050
7	Tata Power Trading Company (P) Ltd.	4.61	0.0021
8	Adani Enterprises Ltd.	2.73	0.0007
9	Jaiprakash Associates Ltd.	2.22	0.0005
10	JSW Power Trading Company Ltd	1.78	0.0003
11	Knowledge Infrastructure Systems (P) Ltd	1.24	0.0002
12	National Energy Trading & Services Ltd.	1.01	0.0001
13	Instinct Infra & Power Ltd.	0.78	0.0001
14	RPG Power Trading Company Ltd.	0.65	0.0000
15	Abja Power Private Limited	0.61	0.0000
16	NHPC Limited	0.53	0.0000
17	Essar Electric Power Development Corp. Ltd.	0.53	0.0000
18	Statkraft Markets Pvt. Ltd.	0.25	0.0000
19	Shree Cement Ltd.	0.20	0.0000
20	IPCL Power Trading Pvt. Ltd.	0.04	0.0000
21	Customized Energy Solutions India (P) Ltd.	0.03	0.0000
22	Phillip Commodities India (P) Ltd.	0.02	0.0000
23	Gita Power & Infrastructure Private Limited	0.003	0.0000
TOTAL		100.00%	0.1531
Top 5 trading licensees		75.73%	
<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 is not included.</i>			
<i>Source: Information submitted by trading licensees</i>			

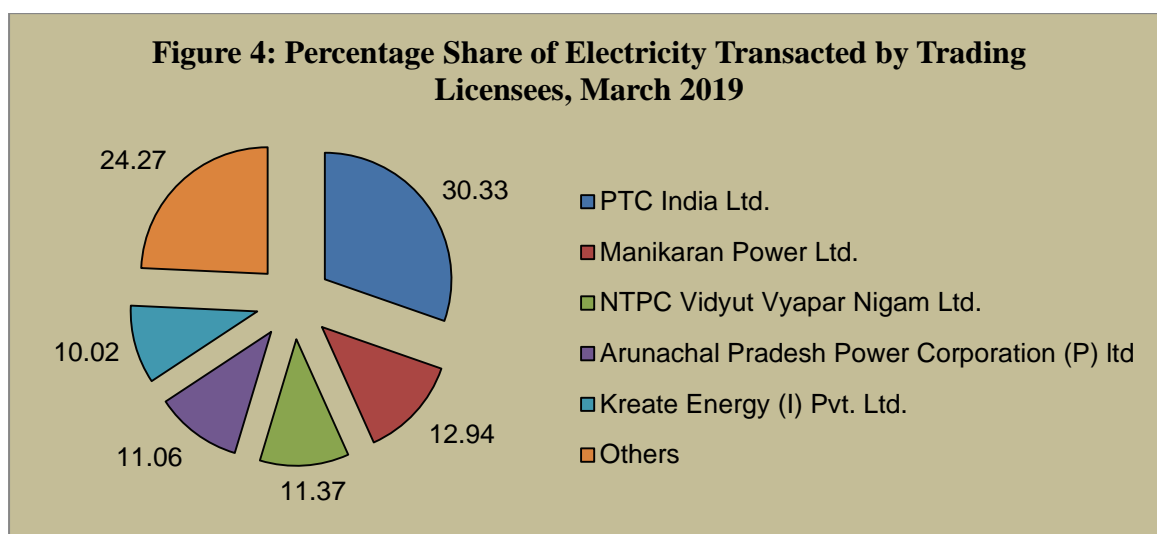


Table-3: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS, MARCH 2019		
Sr.No	Item	Sale Price of Traders (₹/kWh)
1	Minimum	3.01
2	Maximum	6.65
3	Weighted Average	4.86

Source: Information submitted by trading licensees

Table-4: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS (TIME-WISE), MARCH 2019		
Sr.No	Period of Trade	Sale Price of Traders (₹/kWh)
1	RTC	4.85
2	PEAK	5.50
3	OFF PEAK	4.93

Source: Information submitted by trading licensees

Table-5: PRICE OF ELECTRICITY TRANSACTED THROUGH POWER EXCHANGES, MARCH 2019			
Sr.No	ACP	Price in IEX (₹/kWh)	Price in PXIL (₹/kWh)
1	Minimum	1.80	3.05
2	Maximum	10.17	4.50
3	Weighted Average	3.28	3.72

Source: Information submitted by IEX and PXIL

Table-6: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF IEX, MARCH 2019			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	29.28	4.20
2	Day Ahead Contingency Contracts	45.70	3.49
3	Weekly Contracts	171.36	4.15
	Total	246.34	4.03

Source: IEX

Table-7: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF PXIL, MARCH 2019			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	86.79	3.88
2	Any Day(s) Contracts	225.74	4.19
3	Weekly Contracts	136.92	4.76
	Total	449.45	4.30

Source: PXIL

Table-8: PRICE OF ELECTRICITY TRANSACTED THROUGH DSM, MARCH 2019		
Sr.No	Item	Price in All India Grid (₹/kWh)
1	Minimum	0.00
2	Maximum	8.00
3	Average	6.10

Source: NLDC

Figure-5: Price of Short-term Transactions of Electricity, March 2019

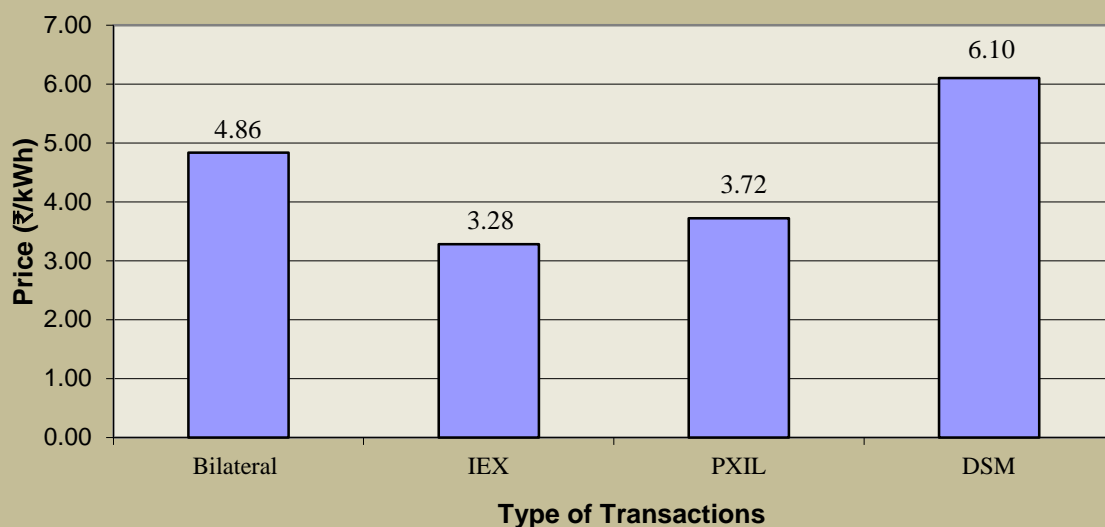
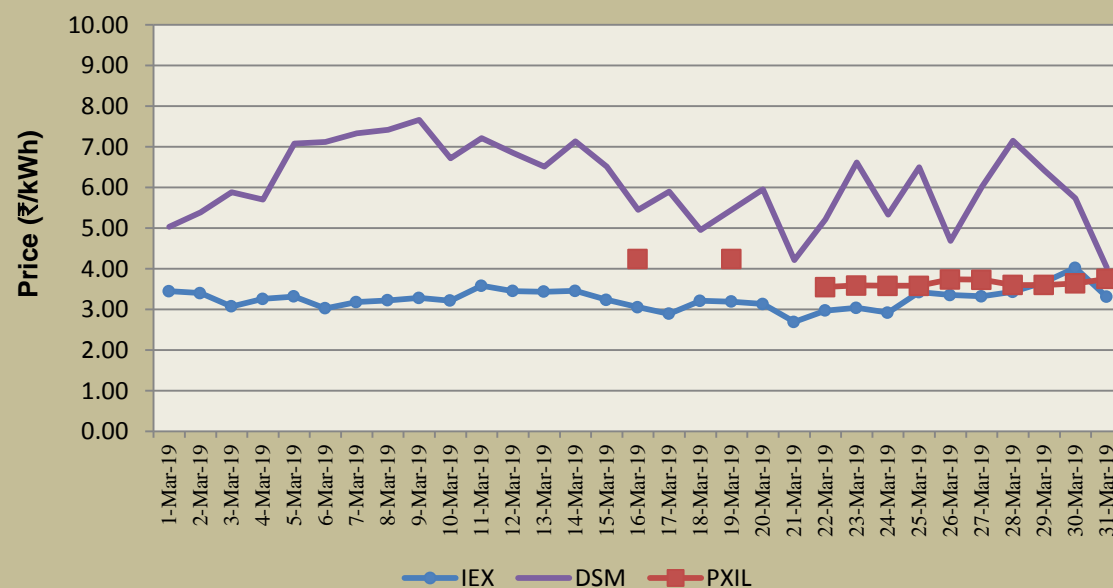


Figure-6: Price of Short-term Transactions of Electricity, March 2019 (Day-wise)



Note : In PXIL, transactions were recorded only on 16th, 19th and 22nd – 31st of March 2019.

Table-9: VOLUME OF ELECTRICITY SOLD THROUGH BILATERAL, MARCH 2019		
Name of the Entity	Volume of Sale (MUs)	% of Volume
PUNJAB	928.10	15.46
SEMBCORP	797.22	13.28
HARYANA	696.03	11.59
DELHI	465.38	7.75
MP	435.97	7.26
JAYPEE NIGRIE	266.41	4.44
GMR CHATTISGARH	251.03	4.18
GUJARAT	216.52	3.61
CHHATTISGARH	188.40	3.14
ESSAR POWER	168.14	2.80
IL&FS	149.25	2.49
SHREE CEMENT	142.95	2.38
ADHUNIK POWER LTD	137.36	2.29
MB POWER	117.28	1.95
DB POWER	104.91	1.75
JINDAL STAGE-II	91.35	1.52
ANDHRA PRADESH	90.09	1.50
RAJASTHAN	88.44	1.47
WEST BENGAL	75.91	1.26
KARNATAKA	74.02	1.23
THERMAL POWERTECH	66.24	1.10
UTTAR PRADESH	52.58	0.88
ONGC PALATANA	46.52	0.77
HIMACHAL PRADESH	43.78	0.73
TELANGANA	40.71	0.68
DVC	25.80	0.43
JHABUA POWER_MP	25.63	0.43
COASTGEN	22.13	0.37
ACBIL	21.00	0.35
SIKKIM	18.60	0.31
BRBCL,NABINAGAR	18.19	0.30
J & K	17.26	0.29
SPECTRUM	14.60	0.24
DAGACHU	13.92	0.23
MARUTI COAL	13.37	0.22
ODISHA	12.60	0.21
MAHARASHTRA	9.97	0.17
TASHIDENG HEP	9.52	0.16
CHUZACHEN HEP	9.21	0.15
JITPL	7.38	0.12
LANKO_AMK	7.30	0.12
JORETHANG	7.04	0.12
GMR KAMALANGA	5.00	0.08
MEGHALAYA	4.56	0.08
TAMIL NADU	2.26	0.04
BIHAR	2.26	0.04
NTPC STATIONS-NER	1.41	0.02
TEESTA STG3	1.10	0.02
MANIPUR	0.48	0.01
TOTAL	6005.18	100.00
Volume Sold by top 5 Regional Entities	3322.70	55.33

Table-10: VOLUME OF ELECTRICITY PURCHASED THROUGH BILATERAL, MARCH 2019		
Name of the Entity	Volume of Purchase (MUs)	% of Volume
TAMIL NADU	1362.91	22.74
ANDHRA PRADESH	658.10	10.98
CHHATTISGARH	527.63	8.80
TELANGANA	458.30	7.65
WEST BENGAL	400.07	6.67
J & K	360.37	6.01
UTTARAKHAND	295.42	4.93
HIMACHAL PRADESH	244.09	4.07
GUJARAT	231.99	3.87
BANGLADESH	211.78	3.53
ESSAR STEEL	177.97	2.97
NEPAL(NVVN)	169.76	2.83
UTTAR PRADESH	144.11	2.40
JHARKHAND	138.83	2.32
KERALA	138.76	2.32
MEGHALAYA	81.32	1.36
ODISHA	73.42	1.22
ASSAM	50.58	0.84
HARYANA	50.57	0.84
GOA	38.19	0.64
MAHARASHTRA	34.28	0.57
BIHAR	29.81	0.50
RAJASTHAN	28.46	0.47
MANIPUR	27.95	0.47
SIKKIM	20.52	0.34
DELHI	15.36	0.26
MP	7.25	0.12
NAGALAND	7.20	0.12
ARUNACHAL PRADESH	5.61	0.09
DVC	1.78	0.03
MIZORAM	0.71	0.01
DADRA & NAGAR HAVELI	0.64	0.01
KARNATAKA	0.10	0.00
TOTAL	5993.83	100.00
Volume Purchased by top 5 Regional Entities	3407.01	56.84

Table-11: VOLUME OF ELECTRICITY SOLD THROUGH POWER EXCHANGES, MARCH 2019		
Name of the Entity	Volume of Sale (MUs)	% of Volume
MP	835.95	24.83
DVC	261.77	7.78
TEESTA STG3	158.22	4.70
RAJASTHAN	156.43	4.65
DELHI	137.13	4.07
BIHAR	133.25	3.96
UTTARAKHAND	123.83	3.68
HIMACHAL PRADESH	122.08	3.63
SEBPCORP	95.89	2.85
UTTAR PRADESH	94.12	2.80
TELANGANA	91.28	2.71
TRIPURA	79.70	2.37
MAHARASHTRA	76.30	2.27
ASSAM	71.40	2.12
BRBCL,NABINAGAR	60.46	1.80
KARNATAKA	53.38	1.59
ANDHRA PRADESH	53.31	1.58
GUJARAT	50.27	1.49
SPECTRUM	45.72	1.36
DB POWER	44.53	1.32
SKS POWER	36.52	1.08
THERMAL POWERTECH	34.52	1.03
J & K	34.17	1.02
MARUTI COAL	33.73	1.00
WEST BENGAL	32.60	0.97
ESSAR POWER	32.09	0.95
GOA	31.89	0.95
JINDAL STAGE-II	26.33	0.78
ODISHA	25.31	0.75
NEEPCO STATIONS	22.70	0.67
TAMIL NADU	22.25	0.66
HARYANA	21.55	0.64
SIKKIM	21.17	0.63
CHANDIGARH	20.17	0.60
ACBIL	20.14	0.60
GMR KAMALANGA	19.67	0.58
NLC	19.20	0.57
CHHATTISGARH	17.55	0.52
ONGC PALATANA	14.22	0.42
KARCHAM WANGTOO	13.12	0.39
JHARKHAND	12.68	0.38
NTPC STATIONS-SR	11.21	0.33
AD HYDRO	11.15	0.33
DIKCHU HEP	10.61	0.32
DADRA & NAGAR HAVELI	8.52	0.25
MIZORAM	8.47	0.25
ARUNACHAL PRADESH	8.32	0.25
SAINJ HEP	7.02	0.21
PUNJAB	5.70	0.17

NTPC STATIONS-NER	4.96	0.15
SHREE CEMENT	4.69	0.14
KERALA	3.98	0.12
MANIPUR	3.97	0.12
JINDAL POWER	3.05	0.09
MB POWER	2.92	0.09
JAYPEE NIGRIE	2.90	0.09
IL&FS	2.15	0.06
CHUZACHEN HEP	1.45	0.04
TASHIDENG HEP	1.40	0.04
LANCO BUDHIL	1.01	0.03
ADHUNIK POWER LTD	0.97	0.03
JORETHANG	0.96	0.03
NTPC STATIONS-WR	0.89	0.03
MALANA	0.85	0.03
DGEN MEGA POWER	0.64	0.02
GMR CHATTISGARH	0.43	0.01
PARE HEP	0.43	0.01
BALCO	0.24	0.01
DOYANG HEP	0.19	0.01
NAGALAND	0.18	0.01
EMCO	0.17	0.00
JHABUA POWER_MP	0.16	0.00
DHARIWAL POWER	0.05	0.00
JITPL	0.01	0.00
NTPC STATIONS-NR	0.01	0.00
TOTAL	3366.23	100.00
Volume sold by top 5 Regional Entities	1549.51	46.03

Table-12: VOLUME OF ELECTRICITY PURCHASED THROUGH POWER EXCHANGES, MARCH 2019		
Name of the Entity	Volume of Purchase (MUs)	% of Volume
TELANGANA	615.22	18.28
GUJARAT	482.78	14.34
MAHARASHTRA	372.89	11.08
TAMIL NADU	305.83	9.09
ODISHA	237.94	7.07
ANDHRA PRADESH	199.37	5.92
BIHAR	135.46	4.02
RAJASTHAN	114.39	3.40
HARYANA	113.50	3.37
ESSAR STEEL	103.01	3.06
PUNJAB	77.85	2.31
DELHI	69.22	2.06
KARNATAKA	57.22	1.70
HIMACHAL PRADESH	55.81	1.66
UTTARAKHAND	53.67	1.59
KERALA	50.34	1.50
ASSAM	49.57	1.47
CHHATTISGARH	44.95	1.34
UTTAR PRADESH	42.53	1.26
JHARKHAND	42.41	1.26
MEGHALAYA	32.74	0.97
WEST BENGAL	30.61	0.91
MP	27.59	0.82
DADRA & NAGAR HAVELI	21.72	0.65
DAMAN AND DIU	19.16	0.57
GOA	3.72	0.11
ARUNACHAL PRADESH	3.40	0.10
MANIPUR	1.44	0.04
NAGALAND	1.11	0.03
MIZORAM	0.74	0.02
CHANDIGARH	0.03	0.00
TOTAL	3366.23	100.00
Volume purchased by top 5 Regional Entities	2014.66	59.85

Table-13: VOLUME OF ELECTRICITY UNDER DRAWAL (EXPORTED) THROUGH DSM, MARCH 2019		
Name of the Entity	Volume of Underdrawal (MUs)	% of Volume
NTPC STATIONS-NR	139.83	8.74
NTPC STATIONS-WR	106.05	6.63
GUJARAT	103.53	6.47
RAJASTHAN	81.13	5.07
UTTAR PRADESH	76.41	4.78
TELANGANA	69.14	4.32
MP	66.12	4.13
TAMIL NADU	62.92	3.93
SASAN UMPP	49.95	3.12
ANDHRA PRADESH	48.76	3.05
MAHARASHTRA	46.41	2.90
J & K	44.30	2.77
NHPC STATIONS	43.09	2.69
PUNJAB	39.98	2.50
BIHAR	37.83	2.36
KARNATAKA	37.66	2.35
CHHATTISGARH	37.31	2.33
HARYANA	33.88	2.12
WEST BENGAL	33.76	2.11
UTTARAKHAND	29.34	1.83
DVC	27.95	1.75
DELHI	27.78	1.74
ESSAR STEEL	25.71	1.61
ASSAM	24.82	1.55
NTPC STATIONS-SR	24.72	1.54
NTPC STATIONS-ER	24.55	1.53
HIMACHAL PRADESH	23.42	1.46
NLC	19.06	1.19
ODISHA	16.50	1.03
JHARKHAND	12.80	0.80
GOA	10.80	0.67
CGPL	9.63	0.60
NEEPCO STATIONS	9.62	0.60
KERALA	7.35	0.46
BANGLADESH	6.44	0.40
MEGHALAYA	6.35	0.40
BRBCL,NABINAGAR	6.08	0.38
RGPL (DABHOL)	5.95	0.37
CHANDIGARH	5.41	0.34
DADRA & NAGAR HAVELI	5.37	0.34
JHABUA POWER_MP	5.23	0.33
SIKKIM	5.09	0.32
TEESTA HEP	5.03	0.31
PONDICHERRY	4.96	0.31
MAITHON POWER LTD	4.62	0.29
JAYPEE NIGRIE	4.26	0.27
MANIPUR	4.22	0.26
LANKO_AMK	3.79	0.24
NETCL VALLUR	3.78	0.24
NJPC	3.61	0.23
JINDAL STAGE-II	3.41	0.21
ACBIL	3.35	0.21

MB POWER	3.19	0.20
ARUNACHAL PRADESH	3.13	0.20
NSPCL	2.72	0.17
NAGALAND	2.71	0.17
NEPAL(NVVN)	2.69	0.17
JINDAL POWER	2.67	0.17
KARCHAM WANGTOO	2.46	0.15
TRIPURA	2.45	0.15
ADHUNIK POWER LTD	2.37	0.15
GMR KAMALANGA	2.27	0.14
EMCO	2.24	0.14
DAMAN AND DIU	2.21	0.14
TEESTA STG3	2.04	0.13
BALCO	2.01	0.13
SENBCORP	1.76	0.11
THERMAL POWERTECH	1.73	0.11
RKM POWER	1.66	0.10
MIZORAM	1.66	0.10
ESSAR POWER	1.63	0.10
TRN ENERGY	1.61	0.10
URI-2	1.35	0.08
KSK MAHANADI	1.28	0.08
SHREE CEMENT	1.21	0.08
TASHIDENG HEP	1.14	0.07
LANCO BUDHIL	1.13	0.07
DB POWER	1.08	0.07
GMR CHATTISGARH	1.03	0.06
AD HYDRO	0.97	0.06
DIKCHU HEP	0.95	0.06
COASTGEN	0.87	0.05
JITPL	0.84	0.05
IL&FS	0.74	0.05
JORETHANG	0.70	0.04
RANGIT HEP	0.65	0.04
CHUZACHEN HEP	0.50	0.03
SKS POWER	0.38	0.02
DHARIWAL POWER	0.32	0.02
DAGACHU	0.26	0.02
LANKO KONDAPALLI	0.16	0.01
MALANA	0.08	0.00
DGEN MEGA POWER	0.01	0.00
DCPP	0.00	0.00
TOTAL	1599.94	100.00
Volume Exported by top 5 Regional Entities	506.96	31.69

Table-14: VOLUME OF ELECTRICITY OVER DRAWAL (IMPORTED) THROUGH DSM, MARCH 2019		
Name of the Entity	Volume of Overdrawal (MUs)	% of Volume
NTPC STATIONS-WR	107.54	7.69
RAJASTHAN	67.73	4.84
KARNATAKA	65.21	4.66
UTTAR PRADESH	58.58	4.19
NTPC STATIONS-ER	58.29	4.17
MP	57.21	4.09
ODISHA	56.01	4.00
NTPC STATIONS-NR	55.09	3.94
MAHARASHTRA	53.69	3.84
TAMIL NADU	42.05	3.01
HARYANA	41.00	2.93
TELANGANA	36.41	2.60
GUJARAT	36.05	2.58
ANDHRA PRADESH	34.55	2.47
BIHAR	34.37	2.46
CHHATTISGARH	32.41	2.32
DVC	31.18	2.23
WEST BENGAL	30.89	2.21
PUNJAB	26.14	1.87
NHPC STATIONS	25.81	1.84
NTPC STATIONS-SR	24.71	1.77
ASSAM	24.68	1.76
HIMACHAL PRADESH	22.85	1.63
KERALA	22.48	1.61
ESSAR STEEL	22.08	1.58
NLC	20.33	1.45
CGPL	17.36	1.24
J & K	17.14	1.22
DELHI	17.02	1.22
JHARKHAND	16.11	1.15
UTTARAKHAND	14.55	1.04
DAMAN AND DIU	13.41	0.96
GMR KAMALANGA	12.61	0.90
NETCL VALLUR	11.85	0.85
NEEPCO STATIONS	9.85	0.70
RGPL (DABHOL)	9.70	0.69
GMR CHATTISGARH	8.96	0.64
GOA	8.70	0.62
DADRA & NAGAR HAVELI	8.03	0.57
DB POWER	7.74	0.55
MEGHALAYA	6.51	0.47
TEESTA HEP	6.07	0.43
BALCO	5.97	0.43
PONDICHERRY	5.66	0.40
TEESTA STG3	5.61	0.40
BRBCL,NABINAGAR	5.38	0.38
BANGLADESH	4.90	0.35
COASTGEN	4.37	0.31
MANIPUR	4.26	0.30
CHANDIGARH	4.15	0.30

JINDAL STAGE-II	4.05	0.29
SHREE CEMENT	3.93	0.28
KARCHAM WANGTOO	3.91	0.28
SASAN UMPP	3.68	0.26
SIKKIM	3.60	0.26
NJPC	3.57	0.26
EMCO	3.53	0.25
NSPCL	3.51	0.25
JHABUA POWER_MP	3.50	0.25
MB POWER	3.32	0.24
MAITHON POWER LTD	2.97	0.21
ARUNACHAL PRADESH	2.89	0.21
RKM POWER	2.62	0.19
NAGALAND	2.51	0.18
ESSAR POWER	2.42	0.17
THERMAL POWERTECH	2.36	0.17
TRIPURA	2.08	0.15
NEPAL(NVVN)	2.08	0.15
DAGACHU	2.02	0.14
ACBIL	1.96	0.14
SEMBICORP	1.89	0.14
DGEN MEGA POWER	1.76	0.13
MIZORAM	1.69	0.12
JITPL	1.47	0.11
ADHUNIK POWER LTD	1.46	0.10
LANKO_AMK	1.42	0.10
DIKCHU HEP	1.38	0.10
JAYPEE NIGRIE	1.36	0.10
IL&FS	1.35	0.10
JINDAL POWER	1.31	0.09
SKS POWER	1.12	0.08
KSK MAHANADI	1.11	0.08
TASHIDENG HEP	1.08	0.08
TRN ENERGY	1.05	0.08
JORETHANG	0.87	0.06
AD HYDRO	0.65	0.05
LANKO KONDAPALLI	0.57	0.04
URI-2	0.57	0.04
LANCO BUDHIL	0.52	0.04
KORBA WEST POWER	0.52	0.04
SIMHAPURI	0.50	0.04
CHUZACHEN HEP	0.44	0.03
RANGIT HEP	0.35	0.02
MEENAKSHI	0.33	0.02
DHARIWAL POWER	0.31	0.02
MALANA	0.13	0.01
DOYANG HEP	0.09	0.01
DCPP	0.02	0.00
RANGANADI HEP	0.00	0.00
TOTAL	1399.07	100.00
Volume Imported by top 5 Regional Entities	357.35	25.54

Table-15: TOTAL VOLUME OF NET SHORT-TERM TRANSACTIONS OF ELECTRICITY (REGIONAL ENTITY-WISE), MARCH 2019		
Sr.No.	Name of the Entity	Total volume of net short-term transactions of electricity*
1	TAMIL NADU	1623.37
2	TELANGANA	908.80
3	ANDHRA PRADESH	699.86
4	GUJARAT	380.50
5	CHHATTISGARH	361.73
6	MAHARASHTRA	328.18
7	WEST BENGAL	319.30
8	ODISHA	312.96
9	J & K	281.78
10	ESSAR STEEL	277.35
11	UTTARAKHAND	210.47
12	BANGLADESH	210.23
13	KERALA	200.25
14	JHARKHAND	171.87
15	NEPAL(NVVN)	169.15
16	HIMACHAL PRADESH	133.47
17	MEGHALAYA	109.66
18	NTPC STATIONS-ER	33.74
19	DAMAN AND DIU	30.36
20	ASSAM	28.61
21	BIHAR	26.31
22	MANIPUR	24.97
23	UTTAR PRADESH	22.10
24	DADRA & NAGAR HAVELI	16.49
25	NETCL VALLUR	8.06
26	NAGALAND	7.93
27	GOA	7.92
28	CGPL	7.73
29	RGPL (DABHOL)	3.74
30	BALCO	3.73
31	DGEN MEGA POWER	1.12
32	EMCO	1.12
33	TEESTA HEP	1.04
34	RKM POWER	0.96
35	NSPCL	0.79
36	PONDICHERRY	0.70
37	NTPC STATIONS-WR	0.60
38	KORBA WEST POWER	0.52
39	SIMHAPURI	0.50
40	ARUNACHAL PRADESH	0.46
41	LANKO KONDAPALLI	0.42
42	MEENAKSHI	0.33
43	DCPP	0.01
44	NJPC	-0.05
45	DHARIWAL POWER	-0.06
46	DOYANG HEP	-0.09
47	KSK MAHANADI	-0.17
48	RANGIT HEP	-0.31
49	PARE HEP	-0.43
50	TRN ENERGY	-0.56
51	URI-2	-0.78
52	MALANA	-0.80

53	LANCO BUDHIL	-1.62
54	MAITHON POWER LTD	-1.65
55	JINDAL POWER	-4.41
56	NTPC STATIONS-NER	-6.37
57	JITPL	-6.75
58	MIZORAM	-6.98
59	SAINJ HEP	-7.02
60	JORETHANG	-7.83
61	LANKO_AMK	-9.67
62	DIKCHU HEP	-10.19
63	CHUZACHEN HEP	-10.73
64	TASHIDENG HEP	-10.98
65	NTPC STATIONS-SR	-11.21
66	AD HYDRO	-11.48
67	KARCHAM WANGTOO	-11.67
68	DAGACHU	-12.15
69	GMR KAMALANGA	-14.32
70	NHPC STATIONS	-17.28
71	NLC	-17.92
72	COASTGEN	-18.63
73	SIKKIM	-20.73
74	CHANDIGARH	-21.40
75	NEEPCO STATIONS	-22.47
76	JHABUA POWER_MP	-27.53
77	SKS POWER	-35.78
78	ACBIL	-42.52
79	KARNATAKA	-42.53
80	SASAN UMPP	-46.27
81	MARUTI COAL	-47.10
82	SPECTRUM	-60.32
83	ONGC PALATANA	-60.74
84	BRBCL,NABINAGAR	-79.35
85	TRIPURA	-80.07
86	NTPC STATIONS-NR	-84.75
87	THERMAL POWERTECH	-100.13
88	RAJASTHAN	-115.43
89	JINDAL STAGE-II	-117.04
90	MB POWER	-120.08
91	ADHUNIK POWER LTD	-139.24
92	DB POWER	-142.78
93	SHREE CEMENT	-144.92
94	IL&FS	-150.79
95	TEESTA STG3	-155.75
96	ESSAR POWER	-199.44
97	GMR CHATTISGARH	-243.53
98	JAYPEE NIGRIE	-272.20
99	DVC	-282.56
100	DELHI	-528.68
101	HARYANA	-546.38
102	PUNJAB	-869.79
103	SEMBCORP	-892.98
104	MP	-1246.00

** 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, MARCH 2019			
	Details of Congestion	IEX	PXIL
A	Unconstrained Cleared Volume* (MUs)	3475.71	10.20
B	Actual Cleared Volume and hence scheduled (MUs)	3356.08	10.15
C	Volume of electricity that could not be cleared and hence not scheduled because of congestion (MUs) (A-B)	119.63	0.05
D	Volume of electricity that could not be cleared as % to Unconstrained Cleared Volume	3.44%	0.47%
E	Percentage of the time congestion occurred during the month (Number of hours congestion occurred/Total number of hours in the month)	35.62%	1.08%
F	Congestion occurrence (%) time block wise		
	0.00 - 6.00 hours	31.23%	0.00%
	6.00 - 12.00 hours	15.75%	0.00%
	12.00 - 18.00 hours	3.96%	50.00%
	18.00 - 24.00 hours	49.06%	50.00%
<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), MARCH 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-Mar-19	120.76	48.37	113.76	0.00	61.83	3393.27
2-Mar-19	121.93	48.63	117.10	0.00	61.54	3302.59
3-Mar-19	108.06	48.27	108.26	0.00	58.33	3208.64
4-Mar-19	117.58	48.24	100.95	0.00	58.79	3303.47
5-Mar-19	119.82	54.14	98.91	0.00	50.99	3366.42
6-Mar-19	127.06	54.86	88.26	0.00	49.67	3403.16
7-Mar-19	133.21	57.59	99.96	0.00	45.02	3456.50
8-Mar-19	125.79	56.94	100.23	0.00	45.11	3439.38
9-Mar-19	122.84	63.64	98.14	0.00	44.91	3427.53
10-Mar-19	119.01	63.23	90.54	0.00	47.08	3384.02
11-Mar-19	131.07	57.10	106.85	0.00	46.57	3487.65
12-Mar-19	137.45	57.32	96.14	0.00	46.19	3527.41
13-Mar-19	146.39	58.05	96.89	0.00	45.98	3526.10
14-Mar-19	146.95	58.52	111.95	0.00	48.86	3486.61
15-Mar-19	145.66	58.71	98.26	0.00	47.75	3433.67
16-Mar-19	148.96	59.91	93.40	0.30	49.10	3417.93
17-Mar-19	144.53	59.51	90.13	0.00	50.60	3326.08
18-Mar-19	161.04	60.70	106.46	0.00	47.95	3466.43
19-Mar-19	158.45	60.77	108.04	0.96	47.23	3529.14
20-Mar-19	146.31	60.96	117.43	0.00	50.84	3483.27
21-Mar-19	139.21	52.31	80.58	0.00	51.19	3152.80
22-Mar-19	133.17	53.00	107.98	0.19	48.34	3298.47
23-Mar-19	144.15	53.06	110.48	0.19	46.10	3431.32
24-Mar-19	142.06	52.18	116.09	0.11	45.96	3409.89
25-Mar-19	140.05	52.65	136.15	0.19	48.76	3509.89
26-Mar-19	146.46	56.14	133.16	0.19	50.77	3530.22
27-Mar-19	140.35	58.48	131.53	0.19	46.60	3606.42
28-Mar-19	143.48	63.98	118.09	2.59	47.11	3639.49
29-Mar-19	138.78	65.47	123.63	2.59	50.87	3682.78
30-Mar-19	141.89	62.31	130.72	0.18	52.76	3681.94
31-Mar-19	135.90	60.41	125.99	2.46	57.59	3447.07
Total	4228.37	1765.46	3356.08	10.15	1550.39	106759.56
Source: NLDC						
* Gross Electricity Generation excluding electricity generation from renewable 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), MARCH 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-Mar-19	2.19	6.60	3.45	-	-	-	0.00	8.00	5.03
2-Mar-19	2.30	6.58	3.40	-	-	-	0.00	8.00	5.38
3-Mar-19	2.19	4.66	3.07	-	-	-	0.00	8.00	5.88
4-Mar-19	1.84	7.02	3.26	-	-	-	0.00	8.00	5.70
5-Mar-19	2.19	7.77	3.32	-	-	-	0.00	8.00	7.08
6-Mar-19	1.93	4.66	3.02	-	-	-	0.00	8.00	7.12
7-Mar-19	2.22	4.77	3.18	-	-	-	0.00	8.00	7.33
8-Mar-19	2.40	5.50	3.22	-	-	-	0.00	8.00	7.42
9-Mar-19	2.22	8.54	3.28	-	-	-	3.20	8.00	7.67
10-Mar-19	2.49	5.80	3.22	-	-	-	0.00	8.00	6.72
11-Mar-19	2.49	7.79	3.58	-	-	-	0.00	8.00	7.22
12-Mar-19	2.51	7.33	3.45	-	-	-	0.00	8.00	6.85
13-Mar-19	2.25	6.06	3.43	-	-	-	0.00	8.00	6.52
14-Mar-19	2.84	4.90	3.45	-	-	-	0.00	8.00	7.13
15-Mar-19	2.48	4.68	3.24	-	-	-	0.00	8.00	6.52
16-Mar-19	2.50	4.00	3.05	4.24	4.24	4.24	0.00	8.00	5.45
17-Mar-19	2.55	3.24	2.89	-	-	-	0.00	8.00	5.90
18-Mar-19	2.47	4.31	3.21	-	-	-	0.00	8.00	4.95
19-Mar-19	2.47	4.17	3.19	4.24	4.24	4.24	0.00	8.00	5.45
20-Mar-19	2.66	4.76	3.13	-	-	-	0.00	8.00	5.95
21-Mar-19	1.80	4.00	2.69	-	-	-	0.00	8.00	4.22
22-Mar-19	1.91	4.89	2.97	3.05	4.05	3.55	0.00	8.00	5.22
23-Mar-19	2.49	4.50	3.04	3.05	4.20	3.59	0.00	8.00	6.62
24-Mar-19	2.49	3.99	2.92	3.05	4.15	3.58	0.00	8.00	5.33
25-Mar-19	2.59	5.67	3.42	3.05	4.20	3.58	0.00	8.00	6.50
26-Mar-19	2.62	6.27	3.35	3.05	4.50	3.74	0.00	8.00	4.68
27-Mar-19	2.64	7.05	3.32	3.05	4.45	3.73	0.00	8.00	6.02
28-Mar-19	2.65	7.86	3.43	3.60	3.60	3.60	0.00	8.00	7.15
29-Mar-19	2.65	8.62	3.67	3.60	3.60	3.60	0.00	8.00	6.42
30-Mar-19	2.81	9.41	4.02	3.64	3.64	3.64	0.00	8.00	5.73
31-Mar-19	2.70	10.17	3.31	3.75	3.75	3.75	0.00	8.00	4.03
	1.80#	10.17#	3.28	3.05#	4.50#	3.72	0.00#	8.00#	6.10
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), MARCH 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	928.10	0.00	-928.10	5.70	77.85	72.15	26.14	39.98	-13.84	-869.79
HARYANA	696.03	50.57	-645.46	21.55	113.50	91.96	41.00	33.88	7.12	-546.38
RAJASTHAN	88.44	28.46	-59.98	156.43	114.39	-42.04	67.73	81.13	-13.40	-115.43
DELHI	465.38	15.36	-450.02	137.13	69.22	-67.90	17.02	27.78	-10.76	-528.68
UTTAR PRADESH	52.58	144.11	91.53	94.12	42.53	-51.59	58.58	76.41	-17.83	22.10
UTTARAKHAND	0.00	295.42	295.42	123.83	53.67	-70.15	14.55	29.34	-14.79	210.47
HP	43.78	244.09	200.31	122.08	55.81	-66.27	22.85	23.42	-0.57	133.47
J & K	17.26	360.37	343.11	34.17	0.00	-34.17	17.14	44.30	-27.16	281.78
CHANDIGARH	0.00	0.00	0.00	20.17	0.03	-20.14	4.15	5.41	-1.26	-21.40
MP	435.97	7.25	-428.72	835.95	27.59	-808.36	57.21	66.12	-8.91	-1246.00
MAHARASHTRA	9.97	34.28	24.31	76.30	372.89	296.59	53.69	46.41	7.28	328.18
GUJARAT	216.52	231.99	15.47	50.27	482.78	432.51	36.05	103.53	-67.48	380.50
CHHATTISGARH	188.40	527.63	339.23	17.55	44.95	27.41	32.41	37.31	-4.90	361.73
GOA	0.00	38.19	38.19	31.89	3.72	-28.17	8.70	10.80	-2.10	7.92
DAMAN AND DIU	0.00	0.00	0.00	0.00	19.16	19.16	13.41	2.21	11.20	30.36
DADRA & NAGAR	0.00	0.64	0.64	8.52	21.72	13.20	8.03	5.37	2.66	16.49
ANDHRA PRADESH	90.09	658.10	568.01	53.31	199.37	146.06	34.55	48.76	-14.21	699.86
KARNATAKA	74.02	0.10	-73.92	53.38	57.22	3.84	65.21	37.66	27.54	-42.53
KERALA	0.00	138.76	138.76	3.98	50.34	46.36	22.48	7.35	15.13	200.25
TAMIL NADU	2.26	1362.91	1360.65	22.25	305.83	283.59	42.05	62.92	-20.86	1623.37
PONDICHERRY	0.00	0.00	0.00	0.00	0.00	0.00	5.66	4.96	0.70	0.70
TELANGANA	40.71	458.30	417.59	91.28	615.22	523.94	36.41	69.14	-32.73	908.80
WEST BENGAL	75.91	400.07	324.16	32.60	30.61	-1.99	30.89	33.76	-2.87	319.30
ODISHA	12.60	73.42	60.82	25.31	237.9	212.63	56.01	16.50	39.51	312.96
BIHAR	2.26	29.81	27.55	133.25	135.4	2.21	34.37	37.83	-3.46	26.31
JHARKHAND	0.00	138.83	138.83	12.68	42.41	29.73	16.11	12.80	3.30	171.87
SIKKIM	18.60	20.52	1.92	21.17	0.00	-21.17	3.60	5.09	-1.49	-20.73
DVC	25.80	1.78	-24.02	261.77	0.00	-261.77	31.18	27.95	3.23	-282.56
ARUNACHAL PRA	0.00	5.61	5.61	8.32	3.40	-4.91	2.89	3.13	-0.24	0.46
ASSAM	0.00	50.58	50.58	71.40	49.57	-21.83	24.68	24.82	-0.14	28.61
MANIPUR	0.48	27.95	27.46	3.97	1.44	-2.53	4.26	4.22	0.04	24.97
MEGHALAYA	4.56	81.32	76.76	0.00	32.74	32.74	6.51	6.35	0.16	109.66
MIZORAM	0.00	0.71	0.71	8.47	0.74	-7.72	1.69	1.66	0.03	-6.98
NAGALAND	0.00	7.20	7.20	0.18	1.11	0.93	2.51	2.71	-0.20	7.93
TRIPURA	0.00	0.00	0.00	79.70	0.00	-79.70	2.08	2.45	-0.37	-80.07
NTPC -NR	0.00	0.00	0.00	0.01	0.00	-0.01	55.09	139.83	-84.74	-84.75
NHPC STATIONS	0.00	0.00	0.00	0.00	0.00	0.00	25.81	43.09	-17.28	-17.28
NJPC	0.00	0.00	0.00	0.00	0.00	0.00	3.57	3.61	-0.05	-0.05
AD HYDRO	0.00	0.00	0.00	11.15	0.00	-11.15	0.65	0.97	-0.33	-11.48
KARCHAM WANG	0.00	0.00	0.00	13.12	0.00	-13.12	3.91	2.46	1.45	-11.67
SHREE CEMENT	142.95	0.00	-142.95	4.69	0.00	-4.69	3.93	1.21	2.72	-144.92
LANCO BUDHIL	0.00	0.00	0.00	1.01	0.00	-1.01	0.52	1.13	-0.61	-1.62
MALANA	0.00	0.00	0.00	0.85	0.00	-0.85	0.13	0.08	0.05	-0.80
URI-2	0.00	0.00	0.00	0.00	0.00	0.00	0.57	1.35	-0.78	-0.78
SAINJ HEP	0.00	0.00	0.00	7.02	0.00	-7.02	0.00	0.00	0.00	-7.02
NTPC -WR	0.00	0.00	0.00	0.89	0.00	-0.89	107.54	106.05	1.49	0.60
JINDAL POWER	0.00	0.00	0.00	3.05	0.00	-3.05	1.31	2.67	-1.36	-4.41
LANKO_AMK	7.30	0.00	-7.30	0.00	0.00	0.00	1.42	3.79	-2.37	-9.67
NSPCL	0.00	0.00	0.00	0.00	0.00	0.00	3.51	2.72	0.79	0.79
ACBIL	21.00	0.00	-21.00	20.14	0.00	-20.14	1.96	3.35	-1.39	-42.52
BALCO	0.00	0.00	0.00	0.24	0.00	-0.24	5.97	2.01	3.96	3.73
RGPL (DABHOL)	0.00	0.00	0.00	0.00	0.00	0.00	9.70	5.95	3.74	3.74

CGPL	0.00	0.00	0.00	0.00	0.00	0.00	17.36	9.63	7.73	7.73
DCPP	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.01
EMCO	0.00	0.00	0.00	0.17	0.00	-0.17	3.53	2.24	1.28	1.12
ESSAR STEEL	0.00	177.97	177.97	0.00	103.01	103.01	22.08	25.71	-3.63	277.35
KSK MAHANADI	0.00	0.00	0.00	0.00	0.00	0.00	1.11	1.28	-0.17	-0.17
ESSAR POWER	168.14	0.00	-168.14	32.09	0.00	-32.09	2.42	1.63	0.79	-199.44
JINDAL STAGE-II	91.35	0.00	-91.35	26.33	0.00	-26.33	4.05	3.41	0.64	-117.04
DB POWER	104.91	0.00	-104.91	44.53	0.00	-44.53	7.74	1.08	6.66	-142.78
DHARIWAL POWER	0.00	0.00	0.00	0.05	0.00	-0.05	0.31	0.32	-0.01	-0.06
JAYPEE NIGRIE	266.41	0.00	-266.41	2.90	0.00	-2.90	1.36	4.26	-2.90	-272.20
DGEN MEGA POWER	0.00	0.00	0.00	0.64	0.00	-0.64	1.76	0.01	1.76	1.12
GMR CHATTISGARH	251.03	0.00	-251.03	0.43	0.00	-0.43	8.96	1.03	7.93	-243.53
KORBA WEST POWER	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.00	0.52	0.52
MB POWER	117.28	0.00	-117.28	2.92	0.00	-2.92	3.32	3.19	0.13	-120.08
MARUTI COAL	13.37	0.00	-13.37	33.73	0.00	-33.73	0.00	0.00	0.00	-47.10
SPECTRUM	14.60	0.00	-14.60	45.72	0.00	-45.72	0.00	0.00	0.00	-60.32
JHABUA POWER	25.63	0.00	-25.63	0.16	0.00	-0.16	3.50	5.23	-1.73	-27.53
SASAN UMPP	0.00	0.00	0.00	0.00	0.00	0.00	3.68	49.95	-46.27	-46.27
TRN ENERGY	0.00	0.00	0.00	0.00	0.00	0.00	1.05	1.61	-0.56	-0.56
RKM POWER	0.00	0.00	0.00	0.00	0.00	0.00	2.62	1.66	0.96	0.96
SKS POWER	0.00	0.00	0.00	36.52	0.00	-36.52	1.12	0.38	0.74	-35.78
NTPC -SR	0.00	0.00	0.00	11.21	0.00	-11.21	24.71	24.72	-0.01	-11.21
LANCO KONDAPALLE	0.00	0.00	0.00	0.00	0.00	0.00	0.57	0.16	0.42	0.42
SIMHAPURI	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.50	0.50
MEENAKSHI	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.33	0.33
COASTGEN	22.13	0.00	-22.13	0.00	0.00	0.00	4.37	0.87	3.50	-18.63
THERMAL POWER	66.24	0.00	-66.24	34.52	0.00	-34.52	2.36	1.73	0.63	-100.13
IL&FS	149.25	0.00	-149.25	2.15	0.00	-2.15	1.35	0.74	0.61	-150.79
NLC	0.00	0.00	0.00	19.20	0.00	-19.20	20.33	19.06	1.28	-17.92
SEMBCORP	797.22	0.00	-797.22	95.89	0.00	-95.89	1.89	1.76	0.13	-892.98
NETCL VALLUR	0.00	0.00	0.00	0.00	0.00	0.00	11.85	3.78	8.06	8.06
NTPC -ER	0.00	0.00	0.00	0.00	0.00	0.00	58.29	24.55	33.74	33.74
MAITHON POWER	0.00	0.00	0.00	0.00	0.00	0.00	2.97	4.62	-1.65	-1.65
ADHUNIK POWER	137.36	0.00	-137.36	0.97	0.00	-0.97	1.46	2.37	-0.91	-139.24
CHUZACHEN HEP	9.21	0.00	-9.21	1.45	0.00	-1.45	0.44	0.50	-0.07	-10.73
RANGIT HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.65	-0.31	-0.31
GMR KAMALANGA	5.00	0.00	-5.00	19.67	0.00	-19.67	12.61	2.27	10.34	-14.32
JITPL	7.38	0.00	-7.38	0.01	0.00	-0.01	1.47	0.84	0.64	-6.75
TEESTA HEP	0.00	0.00	0.00	0.00	0.00	0.00	6.07	5.03	1.04	1.04
DAGACHU	13.92	0.00	-13.92	0.00	0.00	0.00	2.02	0.26	1.77	-12.15
JORETHANG	7.04	0.00	-7.04	0.96	0.00	-0.96	0.87	0.70	0.17	-7.83
NEPAL(NVVN)	0.00	169.76	169.76	0.00	0.00	0.00	2.08	2.69	-0.61	169.15
BANGLADESH	0.00	211.78	211.78	0.00	0.00	0.00	4.90	6.44	-1.54	210.23
TEESTA STG3	1.10	0.00	-1.10	158.22	0.00	-158.22	5.61	2.04	3.58	-155.75
DIKCHU HEP	0.00	0.00	0.00	10.61	0.00	-10.61	1.38	0.95	0.42	-10.19
TASHIDENG HEP	9.52	0.00	-9.52	1.40	0.00	-1.40	1.08	1.14	-0.06	-10.98
BRBCL,NABINAGAR	18.19	0.00	-18.19	60.46	0.00	-60.46	5.38	6.08	-0.70	-79.35
NTPC -NER	1.41	0.00	-1.41	4.96	0.00	-4.96	0.00	0.00	0.00	-6.37
NEEPCO STATION	0.00	0.00	0.00	22.70	0.00	-22.70	9.85	9.62	0.23	-22.47
RANGANADI HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DOYANG HEP	0.00	0.00	0.00	0.19	0.00	-0.19	0.09	0.00	0.09	-0.09
ONGC PALATANA	46.52	0.00	-46.52	14.22	0.00	-14.22	0.00	0.00	0.00	-60.74
PARE HEP	0.00	0.00	0.00	0.43	0.00	-0.43	0.00	0.00	0.00	-0.43

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 April, 2019

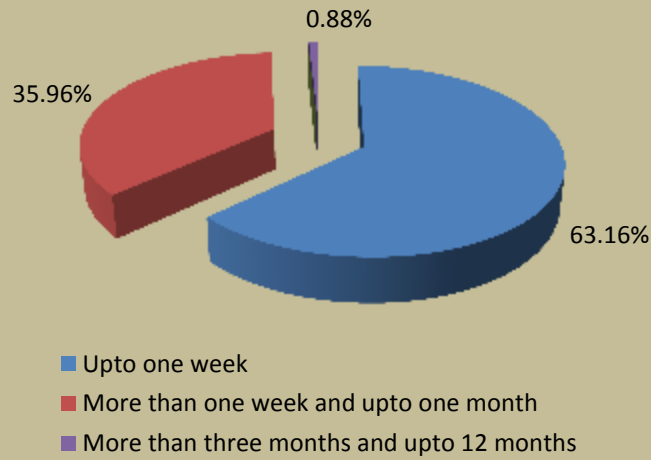


Figure-8: Forward Curve based on Prices of Bilateral Contracts

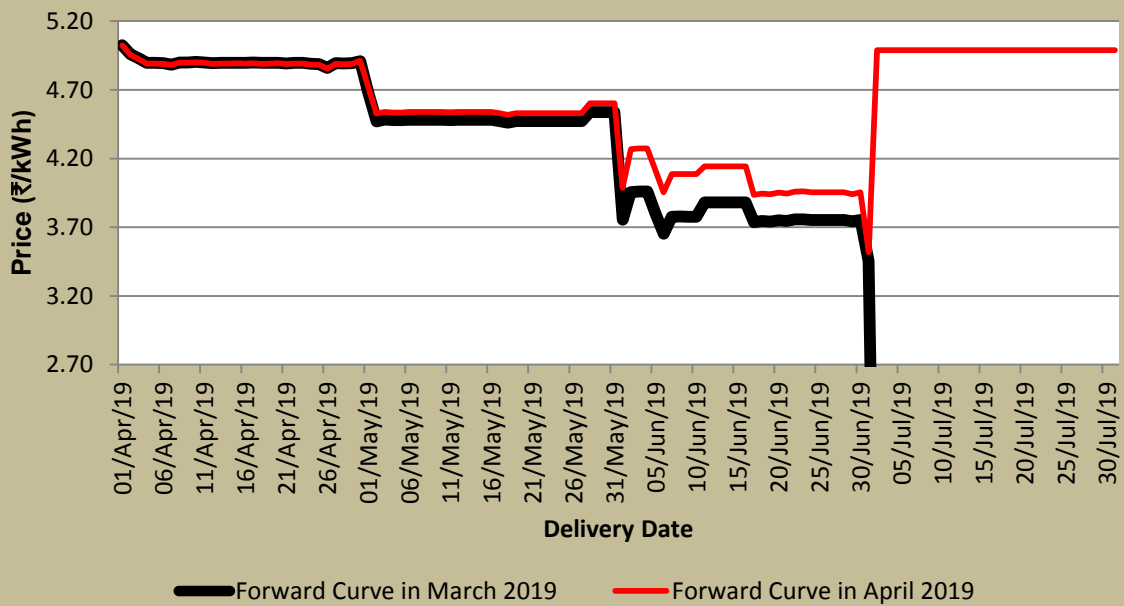


Table-20 : VOLUME AND PRICE OF RENEWABLE ENERGY CERTIFICATES (RECs) TRANSACTIONED THROUGH POWER EXCHANGES, MARCH 2019					
Sr.No.	Details of REC Transactions	IEX		PXIL	
		Solar	Non-Solar	Solar	Non Solar
A	Volume of Buy Bid	686784	1039447	234156	139814
B	Volume of Sell Bid	305049	757242	203322	355727
C	Ratio of Buy Bid to Sell Bid Volume	2.25	1.37	1.15	0.39
D	Market Clearing Volume (MWh)	217231	716929	129152	114449
E	Weighted average Market Clearing Price (₹/MWh)	2000	1500	1700	1395

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>2500.00</i>
<i>Non-Solar</i>	<i>1000.00</i>	<i>2900.00</i>