

Monthly Report on Short-term Transactions of Electricity in India

February, 2019



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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	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.
IEX	Indian Energy Exchange Limited
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
KARCHAM WANGTOO	KarchamWangtoo H.E. Project
KORBA WEST POWER	Korba West Power Company Limited
KSK MAHANADI	KSK Mahanadi Power Ltd
LANCO BUDHIL	LancoBudhil Hydro Power Private Limited
LANKOAMK	LancoAmarkantak Power Private Limited
LANKOKONDAPALLY	LancoKondapally 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 **February,2019** are as under:

I: Volume of Short-term Transactions of Electricity

During February 2019, total electricity generation excluding generation from renewable and captive power plants in India was 91213.62 MUs (Table-1).

Of the total electricity generation, 9438.15 MUs (10.35%) was transacted through short-term, comprising of 4496.17 MUs (4.93%) through bilateral (through traders and term-ahead contracts on power exchanges and directly between distribution companies), followed by 2794.32 MUs (3.06%) through day ahead collective transactions on power exchanges and 2147.67 MUs (2.35%) through DSM (Table-1 & Figure-2).

Of the total short-term transactions, bilateral constitutes 47.64% (31.85% through traders and term-ahead contracts on power exchanges and 15.79% directly between distribution companies) followed by 29.61% through day ahead collective transactions on power exchanges and 22.76% 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 February, 2019. In February 2019, 22 trading licensees were engaged in short term trading. Top 5 trading licensees had a share of 76.63% in the total volume traded by all the licensees. These are PTC India Ltd., Arunachal Pradesh Power Corporation (P) Ltd, Manikaran Power Ltd., Kreate Energy (I) Pvt. Ltd. (Formerly Mittal Processors (P) 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 0.1576 for the month of February, 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 2794.09 MUs and 0.23 MUs respectively. The volume of total buy bids and sell bids was 3762.97 MUs and 7211.78 MUs respectively in IEX while the same was 0.42 MUs and 109.17 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 84.42 MUs and 91.68 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, ₹6.50/kWh and ₹4.76/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 ₹4.74/kWh, ₹5.44/kWh and ₹5.02/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 ₹1.25/kWh, ₹6.57/kWh and ₹3.31/kWh respectively in IEX and it were ₹2.15/kWh, ₹4.50/kWh and ₹3.70/kWh respectively in PXIL (Table-5).

The price of electricity transacted through IEX and PXIL in the term-ahead market was ₹3.71/kWh and ₹4.03/kWh respectively (Table-6 and Table-7).

(iii) Price of electricity transacted through DSM: The average deviation settlement price was ₹3.34/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 59.72% of the volume, and these were Punjab, Haryana, Sembcorp, Gayatri Power Ltd., Delhi and GMR Chhattisgarh. Top 5 regional entities purchased 52.98% of the volume, and these were Andhra Pradesh, Tamil Nadu, Jammu and Kashmir, Himachal Pradesh and Uttarakhand (Table-9 & 10).

Of the total power exchange transactions, top 5 regional entities sold 37.30% of the volume, and these were Madhya Pradesh, Damodar Valley Corporation, Delhi, Sembcorp, Gayatri Power Ltd. and Rajasthan. Top 5 regional entities purchased 51.04% of the volume, and these were Gujarat, Telangana, Tamil Nadu, Andhra Pradesh, and Maharashtra (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 25.72% of the volume, and these were Jammu and Kashmir, Gujarat, Rajasthan, Madhya Pradesh and Tamil Nadu (Table-13). Top 5 regional entities over drew 25.73% of the volume, and these were Uttar Pradesh, NTPC Station (Western Region), Rajasthan, NTPC Station (Eastern Region) and NTPC Station (Northern Region) (Table-14).

Regional entity-wise total volume of net short-term transactions of electricity i.e. volume of net transactions through bilateral, power exchanges and DSM is shown in Table-15 & 19. Top 5 electricity selling regional entities were Punjab, Sembcorp Gayatri Power Ltd., Delhi, Haryana and GMR Chhattisgarh. Top 5 electricity purchasing regional entities were Tamil Nadu, Andhra Pradesh, Telangana, Gujarat and Essar Steel Ltd.

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 February 2019, congestion occurred only in IEX. 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 due to congestion was 2.15% of the unconstrained cleared volume. In terms of time, congestion occurred was 14.43% in IEX (Table-16). No congestion was witnessed in PXIL.

V: Bilateral Contracts executed by Traders

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

(i) Duration of bilateral contracts: During March 2019, a total of 93 bilateral contracts (excluding banking/swap contracts) have been executed by traders for the volume of 2294.21 MUs. Figure-7 shows the percentage of contracts categorized according to the period of power supply. It can be observed from the figure that 69.9% of the bilateral contracts were executed for duration of up to one week, 30.1% of the contracts were executed for duration of more than a week and up to one month, while no contracts were executed for duration of more than one month.

During the month, 52 banking/swapping bilateral contracts were also executed for the volume of 1465.08 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 March, 2019 to 29th June, 2019 based on the bilateral contracts⁴ executed till March, 2019. Forward curves have been drawn for the contracts executed in February, 2019 and March,

⁴Excluding Banking/Swapping contracts

2019 for the purpose of comparison. It is observed that forward contract prices are higher for the contracts executed in March, 2019 compared to the contracts executed in February, 2019 during the period 1st April 2019 – 30th May 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 February, 2019 are shown in Table-20. The market clearing volume of solar RECs transacted on IEX and PXIL were 383708 and 25056 respectively and the market clearing price of these RECs was ₹1500/MWh in IEX and ₹1908/MWh in PXIL. Market clearing volume of non-solar RECs transacted on IEX and PXIL were 654592 and 156493 respectively and the weighted average market clearing price of these RECs was ₹1395/MWh in IEX and ₹1555/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 0.82 and 2.06 in IEX and PXIL respectively. For non-solar RECs, the ratio of buy bids to sell bids was 0.64 and 1.54 in IEX and PXIL respectively.

VII: Inferences:

- The percentage of short-term transactions of electricity to total electricity generation was 10.35%.
- Of the total short-term transactions, bilateral constitutes 47.64% (31.85% through traders and term-ahead contracts on power exchanges and 15.79% directly between distribution companies) followed by 29.61% through day ahead collective transactions on power exchanges and 22.76% through DSM
- Top 5 trading licensees had a share of 76.63% 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 0.1576, indicating moderate concentration of market power.
- The weighted average price of electricity transacted through trading licensees was ₹4.76/kWh. The weighted average price of electricity transacted through IEX and PXIL were ₹3.31/kWh and ₹3.70/kWh respectively.
- The average price of electricity transacted through DSM was ₹3.34/kWh.
- Top 5 electricity selling regional entities were Punjab, Sembcorp, Gayatri Power Ltd., Delhi, Haryana and GMR Chhattisgarh. Top 5 electricity purchasing regional entities were Tamil Nadu, Andhra Pradesh, Telangana, Gujarat and Essar Steel Ltd.
- During the month, the volume of electricity that could not be cleared in IEX due to congestion was 2.15% of the unconstrained cleared volume. In terms of time, congestion occurred was 14.43% in IEX. No congestion was witnessed in PXIL.
- In March 2019, 69.9% of the bilateral contracts were executed for duration of up to one week, 30.1% of the contracts were executed for duration of more than a week and up to one month, while no contracts were executed for duration of more than one month.

- The forward curve of electricity sale prices for the period from 1st March, 2019 to 29th June, 2019 based on the bilateral contracts⁵ executed till March, 2019 shows that forward contract prices are higher for the contracts executed in March, 2019 compared to the contracts executed in February, 2019 during the period 1st April 2019– 30th May, 2019.
- The market clearing volume of solar RECs transacted on IEX and PXIL were 383708 and 25056 respectively and the market clearing price of these RECs was ₹1500/MWh in IEX and ₹1908/MWh in PXIL. Market clearing volume of non-solar RECs transacted on IEX and PXIL were 654592 and 156493 respectively and the weighted average market clearing price of these RECs was ₹1395/MWh in IEX and ₹1555/MWh in PXIL.

⁵*Excluding Banking/Swapping contracts*

Table-1: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (ALL INDIA), FEBRUARY 2019				
Sr.No	Short-term transactions	Volume (MUs)	% to Volume of short-term transactions	% to Total Generation
1	Bilateral	4496.17	47.64	4.93
	(i) Through Traders and PXs	3006.12	31.85	3.30
	(ii) Direct	1490.05	15.79	1.63
2	Through Power Exchanges	2794.32	29.61	3.06
	(i) IEX	2794.09	29.60	3.06
	(ii) PXIL	0.23	0.002	0.0003
3	Through DSM	2147.67	22.76	2.35
	Total	9438.15	-	10.35
	Total Generation	91213.62	-	-

Source: NLDC

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

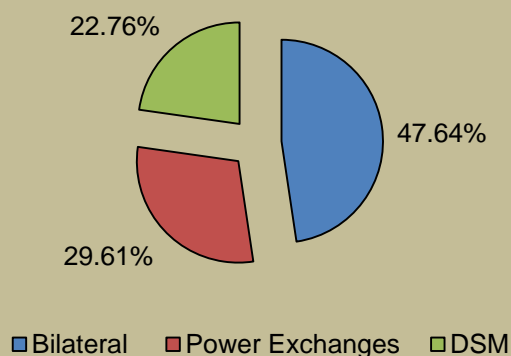
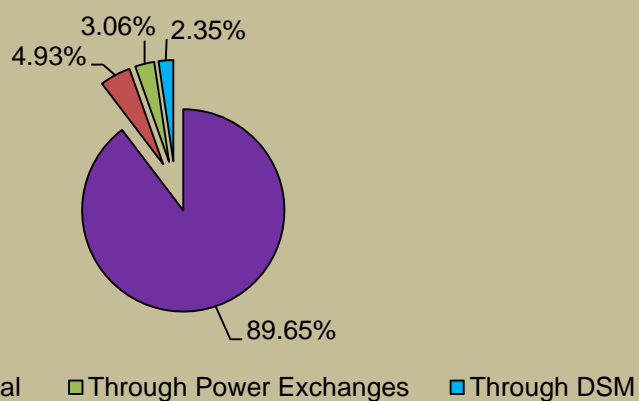


Figure-2: Volume of Various Kinds of Electricity Transactions in Total Electricity Generation, February 2019



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

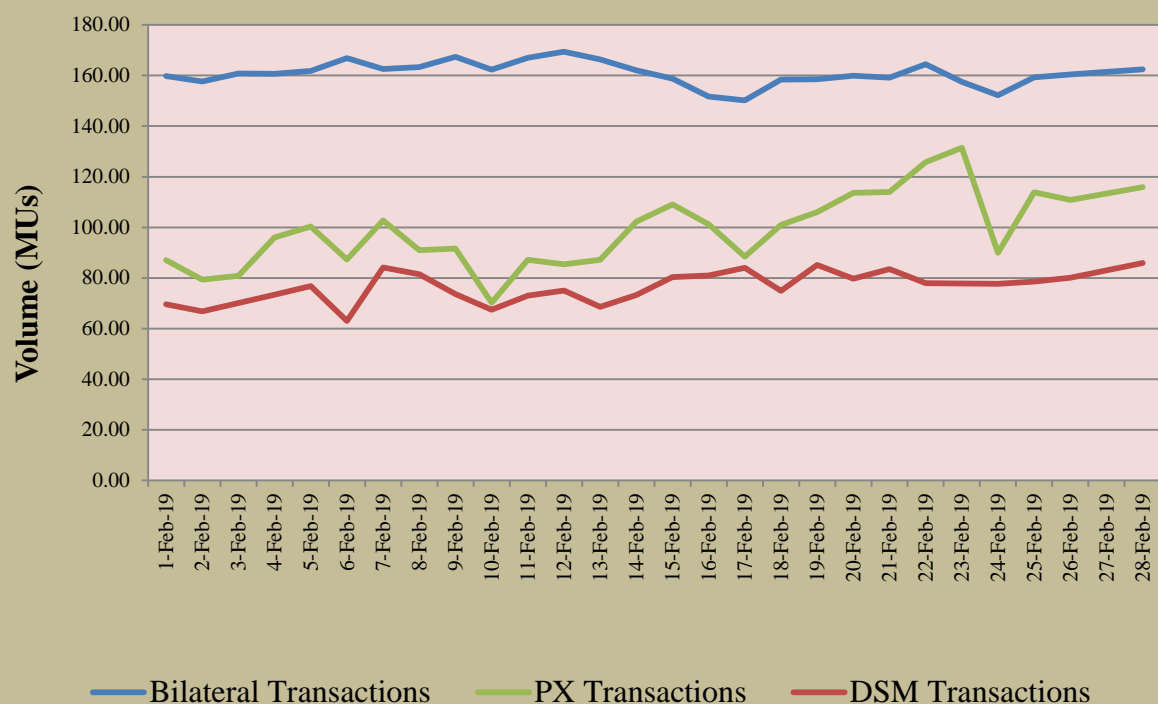


Table-2: PERCENTAGE SHARE OF ELECTRICITY TRANSACTED BY TRADING LICENSEES, FEBRUARY 2019			
Sr.No	Name of the Trading Licensee	% Share in total Volume transacted by Trading Licensees	Herfindahl-Hirschman Index
1	PTC India Ltd.	30.24	0.0914
2	Arunachal Pradesh Power Corporation (P) ltd	14.97	0.0224
3	Manikaran Power Ltd.	13.76	0.0189
4	Kreate Energy (I) Pvt. Ltd.	10.88	0.0118
5	GMR Energy Trading Ltd.	6.78	0.0046
6	Tata Power Trading Company (P) Ltd.	6.10	0.0037
7	NTPC VidyutVyapar Nigam Ltd.	4.54	0.0021
8	Adani Enterprises Ltd.	3.76	0.0014
9	Jaiprakash Associates Ltd.	2.23	0.0005
10	Knowledge Infrastructure Systems (P) Ltd	1.67	0.0003
11	JSW Power Trading Company Ltd	1.37	0.0002
12	National Energy Trading & Services Ltd.	1.12	0.0001
13	Instinct Infra & Power Ltd.	0.85	0.0001
14	RPG Power Trading Company Ltd.	0.71	0.0001
15	Statkraft Markets Pvt. Ltd.	0.26	0.0000
16	Shree Cement Ltd.	0.22	0.0000
17	Essar Electric Power Development Corp. Ltd.	0.21	0.0000
18	Abja Power Private Limited	0.16	0.0000
19	Customized Energy Solutions India (P) Ltd.	0.09	0.0000
20	IPCL Power Trading Pvt. Ltd.	0.03	0.0000
21	Phillip Commodities India (P) Ltd.	0.03	0.0000
22	Gita Power & Infrastructure Private Limited	0.01	0.0000
TOTAL		100.00%	0.1576
Top 5 trading licensees		76.63%	
<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>			

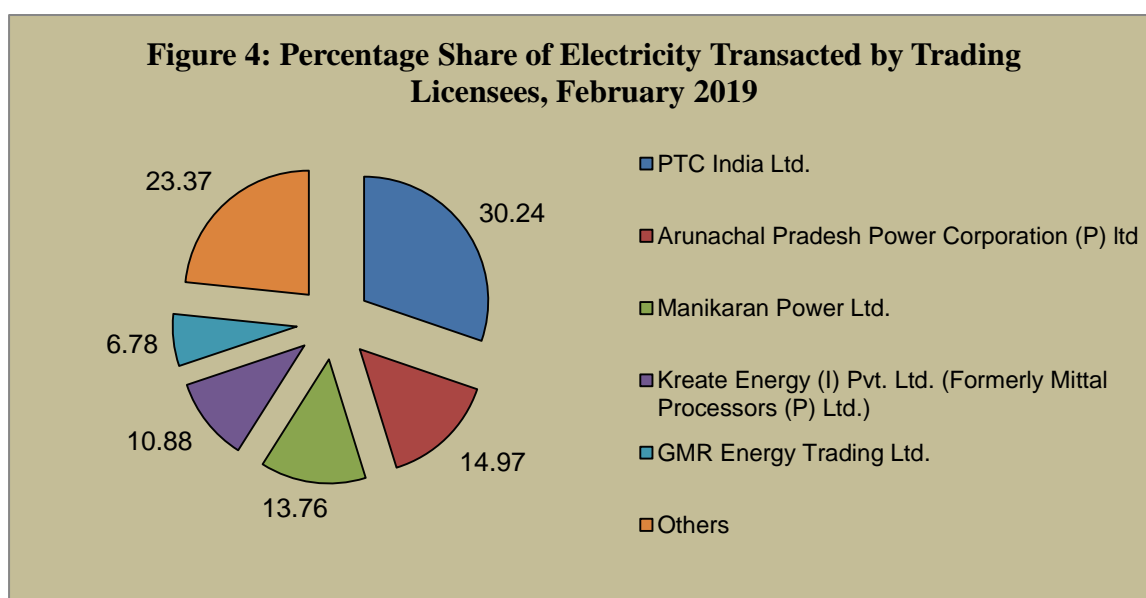


Table-3: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS, FEBRUARY 2019		
Sr.No	Item	Sale Price of Traders (₹/kWh)
1	Minimum	3.01
2	Maximum	6.50
3	Weighted Average	4.76

Source: Information submitted by trading licensees

Table-4: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS (TIME-WISE), FEBRUARY 2019		
Sr.No	Period of Trade	Sale Price of Traders (₹/kWh)
1	RTC	4.74
2	PEAK	5.44
3	OFF PEAK	5.02

Source: Information submitted by trading licensees

Table-5: PRICE OF ELECTRICITY TRANSACTED THROUGH POWER EXCHANGES, FEBRUARY 2019			
Sr.No	ACP	Price in IEX (₹/kWh)	Price in PXIL (₹/kWh)
1	Minimum	1.25	2.15
2	Maximum	6.57	4.50
3	Weighted Average	3.31	3.70

Source: Information submitted by IEX and PXIL

Table-6: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF IEX, FEBRUARY 2019			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	22.60	4.11
2	Day Ahead Contingency Contracts	61.83	3.56
	Total	84.42	3.71

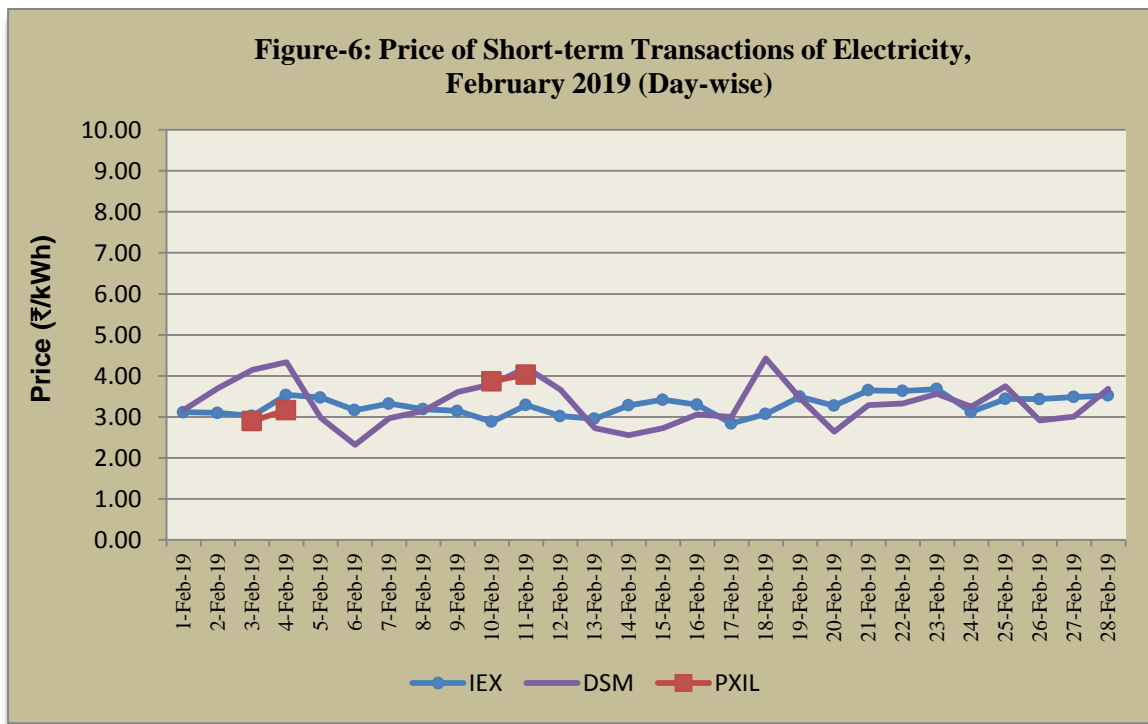
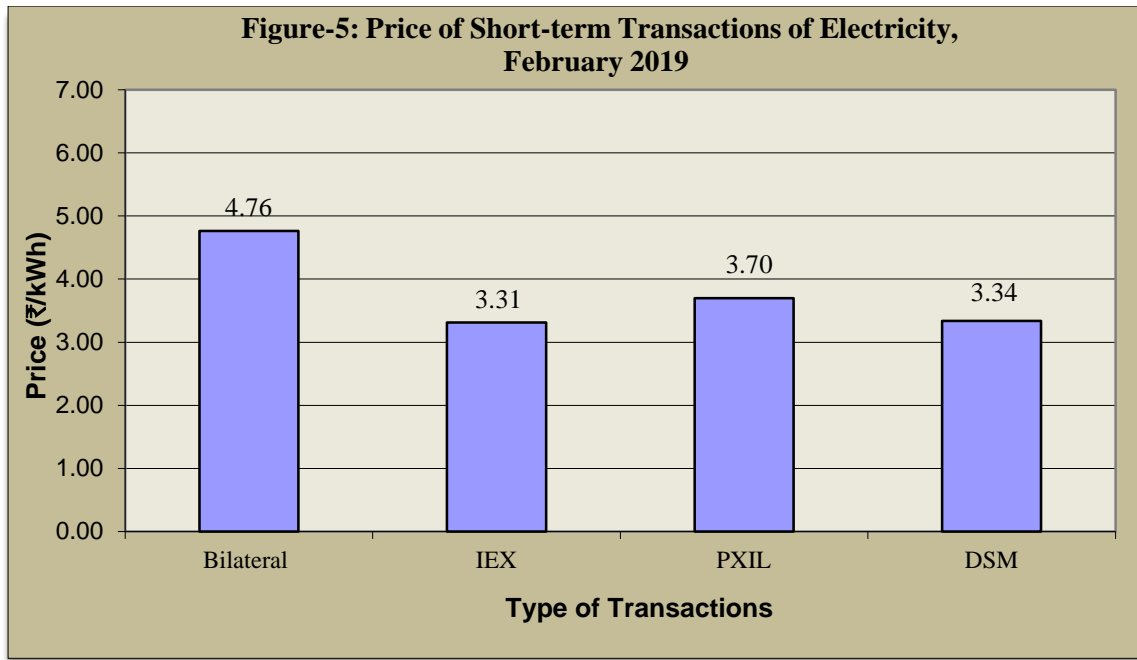
Source: IEX

Table-7: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF PXIL, FEBRUARY 2019			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	30.35	3.91
2	Any Day(s) Contracts	61.33	4.09
	Total	91.68	4.03

Source: PXIL

Table-8: PRICE OF ELECTRICITY TRANSACTED THROUGH DSM, FEBRUARY 2019		
Sr.No	Item	Price in All India Grid (₹/kWh)
1	Minimum	0.00
2	Maximum	8.00
3	Average	3.34

Source: NLDC



Note: In PXIL, transactions were recorded only on 3rd, 4th, 10th and 11th of February 2019.

Table-9: VOLUME OF ELECTRICITY SOLD THROUGH BILATERAL, FEBRUARY 2019		
Name of the Entity	Volume of Sale (MUs)	% of Volume
PUNJAB	851.28	19.02
HARYANA	561.34	12.54
SENBCORP	515.60	11.52
DELHI	432.63	9.67
GMR CHATTISGARH	312.34	6.98
GUJARAT	247.01	5.52
UTTAR PRADESH	214.48	4.79
JAYPEE NIGRIE	194.34	4.34
WEST BENGAL	189.03	4.22
ESSAR POWER	159.46	3.56
SHREE CEMENT	121.54	2.72
ADHUNIK POWER LTD	117.74	2.63
CHHATTISGARH	75.60	1.69
ANDHRA PRADESH	71.37	1.59
DB POWER	57.75	1.29
JINDAL STAGE-II	50.53	1.13
MB POWER	35.40	0.79
COASTGEN	34.76	0.78
TELANGANA	33.99	0.76
HIMACHAL PRADESH	31.44	0.70
DVC	27.84	0.62
MP	26.36	0.59
DAGACHU	15.20	0.34
ODISHA	14.13	0.32
J & K	12.53	0.28
TASHIDENG HEP	9.10	0.20
LANKO_AMK	8.88	0.20
KARNATAKA	8.58	0.19
JORETHANG	7.67	0.17
JITPL	6.65	0.15
MAHARASHTRA	6.31	0.14
RAJASTHAN	5.52	0.12
MEGHALAYA	3.86	0.09
MANIPUR	3.78	0.08
CHUZACHEN HEP	3.20	0.07
GMR KAMALANGA	3.18	0.07
TAMIL NADU	2.57	0.06
BIHAR	1.10	0.02
JHABUA POWER_MP	0.71	0.02
ACBIL	0.68	0.02
JHARKHAND	0.27	0.01
NTPC STATIONS-NER	0.11	0.00
TOTAL	4475.87	100.00
Volume Sold by top 5 Regional Entities	2673.20	59.72

Table-10: VOLUME OF ELECTRICITY PURCHASED THROUGH BILATERAL, FEBRUARY 2019		
Name of the Entity	Volume of Purchase (MUs)	% of Volume
ANDHRA PRADESH	669.82	14.90
TAMIL NADU	611.79	13.61
J & K	395.18	8.79
HIMACHAL PRADESH	367.94	8.18
UTTARAKHAND	337.53	7.51
GUJARAT	301.08	6.70
TELANGANA	219.86	4.89
ESSAR STEEL	210.20	4.68
MP	208.68	4.64
CHHATTISGARH	190.01	4.23
NEPAL(NVVN)	157.48	3.50
BANGLADESH	135.09	3.00
JHARKHAND	120.44	2.68
UTTAR PRADESH	112.63	2.51
MEGHALAYA	80.41	1.79
WEST BENGAL	59.30	1.32
ASSAM	47.05	1.05
ODISHA	38.15	0.85
RAJASTHAN	37.80	0.84
GOA	35.34	0.79
MAHARASHTRA	35.24	0.78
HARYANA	33.07	0.74
MANIPUR	30.83	0.69
BIHAR	18.01	0.40
DELHI	12.82	0.29
KERALA	8.22	0.18
SIKKIM	6.59	0.15
NAGALAND	5.04	0.11
ARUNACHAL PRADESH	4.68	0.10
DADRA & NAGAR HAVELI	3.60	0.08
MIZORAM	1.41	0.03
KARNATAKA	0.90	0.02
TOTAL	4496.17	100.00
Volume Purchased by top 5 Regional Entities	2382.27	52.98

Table-11: VOLUME OF ELECTRICITY SOLD THROUGH POWER EXCHANGES, FEBRUARY 2019		
Name of the Entity	Volume of Sale (MUs)	% of Volume
MP	420.00	15.03
DVC	176.01	6.30
DELHI	167.08	5.98
SEMBCORP	149.09	5.34
RAJASTHAN	130.08	4.66
TELANGANA	107.32	3.84
DB POWER	107.09	3.83
TEESTA STG3	103.79	3.71
HIMACHAL PRADESH	102.12	3.65
COASTGEN	99.66	3.57
UTTAR PRADESH	86.00	3.08
MAHARASHTRA	85.77	3.07
TRIPURA	79.58	2.85
BIHAR	57.81	2.07
ASSAM	55.64	1.99
KARNATAKA	55.57	1.99
UTTARAKHAND	54.95	1.97
NLC	52.95	1.89
MB POWER	52.91	1.89
SPECTRUM	47.99	1.72
ANDHRA PRADESH	47.57	1.70
ODISHA	46.36	1.66
MARUTI COAL	43.17	1.54
CHHATTISGARH	35.51	1.27
SKS POWER	31.86	1.14
GUJARAT	31.80	1.14
ACBIL	31.07	1.11
JINDAL STAGE-II	30.22	1.08
NEEPCO STATIONS	27.19	0.97
TAMIL NADU	19.02	0.68
HARYANA	18.04	0.65
WEST BENGAL	17.97	0.64
GOA	16.92	0.61
GMR KAMALANGA	14.95	0.54
SIKKIM	14.61	0.52
JHABUA POWER_MP	14.29	0.51
JHARKHAND	14.01	0.50
PUNJAB	13.85	0.50
JAYPEE NIGRIE	12.41	0.44
NTPC STATIONS-SR	12.22	0.44
KARCHAM WANGTOO	10.54	0.38
BRBCL,NABINAGAR	10.15	0.36
CHANDIGARH	10.00	0.36
J & K	9.76	0.35
ESSAR POWER	9.58	0.34
SAINJ HEP	9.43	0.34
AD HYDRO	9.12	0.33
PARE HEP	5.57	0.20
SHREE CEMENT	5.16	0.18

DIKCHU HEP	4.83	0.17
MIZORAM	4.67	0.17
JINDAL POWER	3.47	0.12
IL&FS	2.83	0.10
GMR CHATTISGARH	2.04	0.07
KERALA	1.65	0.06
DADRA & NAGAR HAVELI	1.51	0.05
MANIPUR	1.46	0.05
TASHIDENG HEP	1.35	0.05
ARUNACHAL PRADESH	1.30	0.05
JORETHANG	1.04	0.04
LANCO BUDHIL	0.74	0.03
RANGANADI HEP	0.72	0.03
MALANA	0.65	0.02
BALCO	0.52	0.02
CHUZACHEN HEP	0.50	0.02
NTPC STATIONS-NER	0.41	0.01
NTPC STATIONS-WR	0.26	0.01
DHARIWAL POWER	0.25	0.01
DOYANG HEP	0.24	0.01
NAGALAND	0.08	0.00
ONGC PALATANA	0.02	0.00
JITPL	0.01	0.00
TOTAL	2794.32	100.00
Volume sold by top 5 Regional Entities	1042.26	37.30

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

Name of the Entity	Volume of Purchase (MUs)	% of Volume
GUJARAT	357.53	12.79
TELANGANA	307.97	11.02
TAMIL NADU	296.09	10.60
ANDHRA PRADESH	251.60	9.00
MAHARASHTRA	212.92	7.62
BIHAR	154.39	5.53
ESSAR STEEL	132.09	4.73
KERALA	125.74	4.50
RAJASTHAN	120.55	4.31
HARYANA	97.92	3.50
KARNATAKA	85.13	3.05
ODISHA	73.59	2.63
UTTARAKHAND	69.08	2.47
WEST BENGAL	66.59	2.38
DELHI	57.47	2.06
ASSAM	54.43	1.95
HIMACHAL PRADESH	48.78	1.75
CHHATTISGARH	43.27	1.55
JHARKHAND	41.88	1.50
DADRA & NAGAR HAVELI	39.49	1.41
MP	35.21	1.26
UTTAR PRADESH	29.27	1.05
DAMAN AND DIU	28.28	1.01
MEGHALAYA	27.62	0.99
J & K	12.00	0.43
PUNJAB	8.88	0.32
ARUNACHAL PRADESH	5.69	0.20
NAGALAND	3.25	0.12
GOA	2.37	0.08
CHANDIGARH	2.35	0.08
MANIPUR	1.50	0.05
MIZORAM	1.41	0.05
TOTAL	2794.32	100.00
Volume purchased by top 5 Regional Entities	1426.11	51.04

Table-13: VOLUME OF ELECTRICITY UNDER DRAWAL (EXPORTED) THROUGH DSM, FEBRUARY 2019		
Name of the Entity	Volume of Underdrawal (MUs)	% of Volume
J & K	83.25	6.18
GUJARAT	74.28	5.51
RAJASTHAN	64.71	4.80
MP	63.07	4.68
TAMIL NADU	61.40	4.55
ANDHRA PRADESH	58.70	4.35
UTTAR PRADESH	56.63	4.20
TELANGANA	53.51	3.97
NHPC STATIONS	52.08	3.86
MAHARASHTRA	43.49	3.23
NTPC STATIONS-WR	41.49	3.08
SASAN UMPP	40.19	2.98
NTPC STATIONS-NR	39.89	2.96
KARNATAKA	38.40	2.85
BIHAR	37.51	2.78
HARYANA	35.30	2.62
UTTARAKHAND	32.58	2.42
WEST BENGAL	31.85	2.36
PUNJAB	31.34	2.33
HIMACHAL PRADESH	25.43	1.89
NTPC STATIONS-ER	25.27	1.87
DELHI	24.91	1.85
CHHATTISGARH	24.86	1.84
DVC	24.72	1.83
NTPC STATIONS-SR	24.26	1.80
NLC	24.26	1.80
ESSAR STEEL	22.41	1.66
ODISHA	19.22	1.43
JHARKHAND	14.80	1.10
NEEPCO STATIONS	14.24	1.06
ASSAM	13.42	1.00
TRIPURA	11.02	0.82
CGPL	9.31	0.69
KERALA	8.23	0.61
BANGLADESH	6.73	0.50
RGPL (DABHOL)	6.30	0.47
MB POWER	5.68	0.42
GOA	5.67	0.42
CHANDIGARH	5.32	0.39
ARUNACHAL PRADESH	5.17	0.38
MEGHALAYA	4.75	0.35
PONDICHERRY	4.30	0.32
SIKKIM	4.24	0.31
LANKO_AMK	3.10	0.23
MAITHON POWER LTD	3.09	0.23
TEESTA HEP	3.03	0.22
DADRA & NAGAR HAVELI	3.00	0.22
MANIPUR	2.79	0.21
JHABUA POWER_MP	2.52	0.19
MIZORAM	2.51	0.19

GMR KAMALANGA	2.50	0.19
JINDAL STAGE-II	2.48	0.18
DAMAN AND DIU	2.46	0.18
NETCL VALLUR	2.45	0.18
ACBIL	2.42	0.18
BRBCL,NABINAGAR	2.38	0.18
NSPCL	2.26	0.17
RKM POWER	2.25	0.17
THERMAL POWERTECH	2.05	0.15
JAYPEE NIGRIE	2.04	0.15
EMCO	2.01	0.15
COASTGEN	1.97	0.15
SEMBCORP	1.94	0.14
NAGALAND	1.93	0.14
JINDAL POWER	1.86	0.14
NEPAL(NVVN)	1.77	0.13
ESSAR POWER	1.61	0.12
TRN ENERGY	1.54	0.11
KSK MAHANADI	1.51	0.11
URI-2	1.43	0.11
DB POWER	1.42	0.11
BALCO	1.27	0.09
JITPL	1.05	0.08
GMR CHATTISGARH	0.94	0.07
TASHIDENG HEP	0.91	0.07
TEESTA STG3	0.82	0.06
ADHUNIK POWER LTD	0.80	0.06
SHREE CEMENT	0.77	0.06
AD HYDRO	0.67	0.05
JORETHANG	0.65	0.05
IL&FS	0.59	0.04
RANGANADI HEP	0.51	0.04
RANGIT HEP	0.47	0.03
LOKTAK	0.41	0.03
SKS POWER	0.35	0.03
DHARIWAL POWER	0.32	0.02
DIKCHU HEP	0.30	0.02
DOYANG HEP	0.21	0.02
DAGACHU	0.18	0.01
CHUZACHEN HEP	0.10	0.01
MALANA	0.07	0.01
LANKO KONDAPALLI	0.07	0.01
DCPP	0.01	0.00
TOTAL	1347.99	100.00
Volume Exported by top 5 Regional Entities	346.69	25.72

Table-14: VOLUME OF ELECTRICITY OVER DRAWAL (IMPORTED) THROUGH DSM, FEBRUARY 2019		
Name of the Entity	Volume of Overdrawal (MUs)	% of Volume
UTTAR PRADESH	75.24	5.74
NTPC STATIONS-WR	75.19	5.74
RAJASTHAN	71.62	5.47
NTPC STATIONS-ER	57.70	4.40
NTPC STATIONS-NR	57.35	4.38
MAHARASHTRA	57.07	4.36
KARNATAKA	53.01	4.05
MP	48.69	3.72
NTPC STATIONS-SR	47.87	3.65
GUJARAT	43.14	3.29
TELANGANA	42.90	3.27
TAMIL NADU	40.82	3.12
HARYANA	39.72	3.03
ODISHA	36.73	2.80
CHHATTISGARH	35.73	2.73
DVC	32.17	2.46
ANDHRA PRADESH	28.05	2.14
NHPC STATIONS	25.66	1.96
KERALA	25.30	1.93
WEST BENGAL	25.18	1.92
BIHAR	24.84	1.90
PUNJAB	24.26	1.85
ESSAR STEEL	19.95	1.52
HIMACHAL PRADESH	19.65	1.50
JHARKHAND	19.31	1.47
NLC	16.33	1.25
CGPL	15.11	1.15
UTTARAKHAND	14.51	1.11
DELHI	13.05	1.00
NETCL VALLUR	11.96	0.91
GMR CHATTISGARH	11.62	0.89
ASSAM	10.29	0.79
J & K	8.82	0.67
DADRA & NAGAR HAVELI	8.69	0.66
RGPL (DABHOL)	8.45	0.65
DB POWER	7.98	0.61
DAMAN AND DIU	7.70	0.59
BANGLADESH	7.64	0.58
CHANDIGARH	7.05	0.54
NEPAL(NVVN)	6.41	0.49
GOA	6.25	0.48
NAGALAND	5.38	0.41
GMR KAMALANGA	4.91	0.37
DAGACHU	4.87	0.37
SEMBCORP	4.79	0.37
JHABUA POWER_MP	4.77	0.36
COASTGEN	4.71	0.36
EMCO	4.63	0.35
BALCO	4.50	0.34
SASAN UMPP	4.15	0.32

MB POWER	4.03	0.31
PONDICHERRY	3.98	0.30
JINDAL STAGE-II	3.78	0.29
ARUNACHAL PRADESH	3.70	0.28
BRBCL,NABINAGAR	3.59	0.27
MEGHALAYA	3.44	0.26
SIKKIM	3.21	0.25
NSPCL	3.18	0.24
SHREE CEMENT	3.17	0.24
ACBIL	3.16	0.24
TRIPURA	3.00	0.23
MANIPUR	2.85	0.22
THERMAL POWERTECH	2.82	0.22
NJPC	2.44	0.19
MAITHON POWER LTD	2.42	0.18
ESSAR POWER	2.41	0.18
JAYPEE NIGRIE	1.93	0.15
TEESTA STG3	1.78	0.14
NEEPCO STATIONS	1.78	0.14
MIZORAM	1.75	0.13
TASHIDENG HEP	1.71	0.13
LANKO_AMK	1.70	0.13
RANGANADI HEP	1.67	0.13
JINDAL POWER	1.28	0.10
ADHUNIK POWER LTD	1.24	0.09
LANCO BUDHIL	1.23	0.09
IL&FS	1.11	0.09
DGEN MEGA POWER	0.96	0.07
JITPL	0.94	0.07
TRN ENERGY	0.91	0.07
AD HYDRO	0.82	0.06
KSK MAHANADI	0.78	0.06
JORETHANG	0.63	0.05
SKS POWER	0.63	0.05
RKM POWER	0.58	0.04
KORBA WEST POWER	0.53	0.04
SIMHAPURI	0.51	0.04
TEESTA HEP	0.47	0.04
LANKO KONDAPALLI	0.40	0.03
LOKTAK	0.31	0.02
MEENAKSHI	0.29	0.02
RANGIT HEP	0.27	0.02
DIKCHU HEP	0.26	0.02
MALANA	0.25	0.02
DHARIWAL POWER	0.21	0.02
DOYANG HEP	0.20	0.02
CHUZACHEN HEP	0.14	0.01
DCPP	0.01	0.00
TOTAL	1310.17	100.00
Volume Imported by top 5 Regional Entities	337.10	25.73

Table-15: TOTAL VOLUME OF NET SHORT-TERM TRANSACTIONS OF ELECTRICITY (REGIONAL ENTITY-WISE), FEBRUARY 2019		
Sr.No.	Name of the Entity	Total volume of net short-term transactions of electricity*
1	TAMIL NADU	865.71
2	ANDHRA PRADESH	771.84
3	TELANGANA	375.92
4	GUJARAT	348.65
5	ESSAR STEEL	339.84
6	UTTARAKHAND	333.60
7	J & K	310.46
8	HIMACHAL PRADESH	277.39
9	MAHARASHTRA	169.66
10	NEPAL(NVVN)	162.12
11	JHARKHAND	152.55
12	KERALA	149.37
13	BANGLADESH	135.99
14	CHHATTISGARH	133.04
15	MEGHALAYA	102.86
16	BIHAR	100.81
17	ODISHA	68.75
18	DADRA & NAGAR HAVELI	47.27
19	ASSAM	42.70
20	KARNATAKA	36.49
21	DAMAN AND DIU	33.52
22	NTPC STATIONS-WR	33.43
23	NTPC STATIONS-ER	32.43
24	RAJASTHAN	29.68
25	MANIPUR	27.15
26	GOA	21.37
27	NTPC STATIONS-NR	17.46
28	NAGALAND	11.66
29	NTPC STATIONS-SR	11.39
30	NETCL VALLUR	9.51
31	ARUNACHAL PRADESH	7.60
32	CGPL	5.81
33	BALCO	2.71
34	EMCO	2.62
35	NJPC	2.44
36	RGPPL (DABHOL)	2.15
37	DGEN MEGA POWER	0.96
38	NSPCL	0.92
39	THERMAL POWERTECH	0.77
40	KORBA WEST POWER	0.53
41	TRN ENERGY	-0.63
42	MAITHON POWER LTD	-0.67
43	KSK MAHANADI	-0.73
44	URI-2	-1.43
45	RKM POWER	-1.68
46	IL&FS	-2.31
47	TEESTA HEP	-2.56
48	MIZORAM	-2.61
49	CHUZACHEN HEP	-3.65
50	JINDAL POWER	-4.06

51	DIKCHU HEP	-4.88
52	PARE HEP	-5.57
53	CHANDIGARH	-5.92
54	JITPL	-6.77
55	JORETHANG	-8.73
56	BRBCL,NABINAGAR	-8.94
57	AD HYDRO	-8.97
58	SIKKIM	-9.05
59	SAINJ HEP	-9.43
60	TASHIDENG HEP	-9.64
61	LANKO_AMK	-10.28
62	DAGACHU	-10.50
63	KARCHAM WANGTOO	-10.54
64	JHABUA POWER_MP	-12.75
65	GMR KAMALANGA	-15.73
66	NHPC STATIONS	-26.42
67	ACBIL	-31.01
68	SKS POWER	-31.58
69	SASAN UMPP	-36.04
70	NEEPCO STATIONS	-39.66
71	MARUTI COAL	-43.17
72	SPECTRUM	-47.99
73	NLC	-60.88
74	JINDAL STAGE-II	-79.45
75	TRIPURA	-87.59
76	WEST BENGAL	-87.80
77	MB POWER	-89.96
78	TEESTA STG3	-102.83
79	ADHUNIK POWER LTD	-117.30
80	SHREE CEMENT	-124.30
81	COASTGEN	-131.67
82	UTTAR PRADESH	-139.98
83	DB POWER	-158.28
84	ESSAR POWER	-168.24
85	DVC	-196.41
86	JAYPEE NIGRIE	-206.86
87	MP	-216.84
88	GMR CHATTISGARH	-303.71
89	HARYANA	-443.97
90	DELHI	-541.29
91	SEMBCORP	-661.84
92	PUNJAB	-863.33

** 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, FEBRUARY 2019			
	Details of Congestion	IEX	PXIL
A	Unconstrained Cleared Volume* (MUs)	2855.62	0.23
B	Actual Cleared Volume and hence scheduled (MUs)	2794.09	0.23
C	Volume of electricity that could not be cleared and hence not scheduled because of congestion (MUs) (A-B)	61.53	0.00
D	Volume of electricity that could not be cleared as % to Unconstrained Cleared Volume	2.15%	0.00%
E	Percentage of the time congestion occurred during the month (Number of hours congestion occurred/Total number of hours in the month)	14.43%	0.00%
F	Congestion occurrence (%) time block wise		
	0.00 - 6.00 hours	22.68%	0.00%
	6.00 - 12.00 hours	40.21%	0.00%
	12.00 - 18.00 hours	1.29%	0.00%
	18.00 - 24.00 hours	35.82%	0.00%
<i>* This power would have been scheduled had there been no congestion.</i>			
<i>Source: IEX & PXIL & NLDC</i>			

Table-17: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY IN INDIA (DAY-WISE) (MUs), FEBRUARY 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-Feb-19	110.82	49.01	87.00	0.00	69.60	3200.83
2-Feb-19	113.99	43.60	79.35	0.00	66.82	3200.88
3-Feb-19	110.73	50.03	80.81	0.04	70.10	3097.87
4-Feb-19	111.48	49.24	95.95	0.03	73.43	3196.39
5-Feb-19	112.15	49.62	100.39	0.00	76.79	3321.42
6-Feb-19	117.08	49.74	87.25	0.00	63.01	3304.71
7-Feb-19	112.80	49.78	102.80	0.00	84.14	3154.76
8-Feb-19	109.98	53.36	90.96	0.00	81.54	3240.58
9-Feb-19	115.60	51.73	91.60	0.00	73.69	3213.22
10-Feb-19	104.24	58.04	70.14	0.07	67.48	3122.60
11-Feb-19	109.08	57.92	87.08	0.10	72.95	3172.44
12-Feb-19	109.98	59.38	85.37	0.00	75.06	3209.45
13-Feb-19	115.23	51.16	87.13	0.00	68.58	3272.33
14-Feb-19	110.90	51.17	102.23	0.00	73.31	3282.18
15-Feb-19	109.19	49.62	109.11	0.00	80.41	3263.74
16-Feb-19	102.88	48.80	101.19	0.00	80.96	3216.97
17-Feb-19	95.19	55.01	88.44	0.00	84.02	3163.49
18-Feb-19	99.70	58.75	101.02	0.00	74.89	3256.52
19-Feb-19	100.02	58.46	106.02	0.00	85.09	3354.30
20-Feb-19	100.51	59.39	113.67	0.00	79.67	3349.93
21-Feb-19	99.98	59.16	113.96	0.00	83.47	3352.27
22-Feb-19	105.23	59.21	125.77	0.00	77.93	3366.31
23-Feb-19	102.30	55.17	131.41	0.00	77.77	3339.19
24-Feb-19	98.59	53.65	90.01	0.00	77.69	3252.09
25-Feb-19	104.59	54.76	113.89	0.00	78.51	3325.29
26-Feb-19	105.96	54.50	110.78	0.00	80.15	3329.30
27-Feb-19	111.60	50.83	115.91	0.00	85.88	3308.72
28-Feb-19	106.31	48.96	124.84	0.00	84.72	3345.84
Total	3006.12	1490.05	2794.09	0.23	2147.67	91213.62
<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), FEBRUARY 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-Feb-19	1.65	4.49	3.11	-	-	-	0.00	8.00	3.17
2-Feb-19	1.50	5.80	3.10	-	-	-	0.00	8.00	3.70
3-Feb-19	1.54	4.31	3.02	2.90	2.90	2.90	0.00	8.00	4.15
4-Feb-19	1.25	5.81	3.53	2.15	4.15	3.17	0.00	8.00	4.34
5-Feb-19	1.74	5.80	3.47	-	-	-	0.00	8.00	2.97
6-Feb-19	1.75	5.83	3.16	-	-	-	0.00	8.00	2.32
7-Feb-19	2.01	5.00	3.32	-	-	-	0.00	8.00	2.97
8-Feb-19	1.75	5.80	3.19	-	-	-	0.00	7.38	3.15
9-Feb-19	1.50	5.80	3.15	-	-	-	0.00	8.00	3.61
10-Feb-19	1.55	5.80	2.88	2.20	4.50	3.87	0.00	8.00	3.80
11-Feb-19	1.50	6.57	3.29	2.20	4.50	4.03	0.00	8.00	4.20
12-Feb-19	1.75	4.63	3.02	-	-	-	0.00	8.00	3.66
13-Feb-19	1.62	4.25	2.95	-	-	-	0.00	7.68	2.73
14-Feb-19	1.75	5.00	3.28	-	-	-	0.00	7.69	2.55
15-Feb-19	1.75	5.10	3.42	-	-	-	0.00	8.00	2.72
16-Feb-19	1.61	6.57	3.30	-	-	-	0.00	7.39	3.06
17-Feb-19	1.74	4.02	2.84	-	-	-	0.00	7.67	3.00
18-Feb-19	1.50	4.36	3.07	-	-	-	0.57	8.00	4.42
19-Feb-19	1.80	5.88	3.49	-	-	-	0.00	8.00	3.46
20-Feb-19	1.91	4.63	3.27	-	-	-	0.00	7.09	2.64
21-Feb-19	2.00	5.51	3.65	-	-	-	0.00	8.00	3.29
22-Feb-19	2.41	5.29	3.63	-	-	-	0.00	8.00	3.33
23-Feb-19	2.32	5.80	3.68	-	-	-	0.00	8.00	3.56
24-Feb-19	1.80	5.42	3.12	-	-	-	0.00	8.00	3.25
25-Feb-19	2.47	5.00	3.44	-	-	-	0.00	7.71	3.75
26-Feb-19	2.47	5.81	3.44	-	-	-	0.00	8.00	2.91
27-Feb-19	2.49	5.53	3.48	-	-	-	0.00	8.00	3.01
28-Feb-19	2.49	6.26	3.52	-	-	-	0.00	8.00	3.69
	1.25#	6.57#	3.31	2.15#	4.50#	3.70	0.00#	8.00#	3.34
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), FEBRUARY 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	851.28	0.00	-851.28	13.85	8.88	-4.98	24.26	31.34	-7.08	-863.33
HARYANA	561.34	33.07	-528.27	18.04	97.92	79.88	39.72	35.30	4.42	-443.97
RAJASTHAN	5.52	37.80	32.29	130.08	120.55	-9.53	71.62	64.71	6.92	29.68
DELHI	432.63	12.82	-419.81	167.08	57.47	-109.62	13.05	24.91	-11.86	-541.29
UP	214.48	112.63	-101.85	86.00	29.27	-56.73	75.24	56.63	18.61	-139.98
UTTARAKHAND	0.00	337.53	337.53	54.95	69.08	14.14	14.51	32.58	-18.08	333.60
HP	31.44	367.94	336.51	102.12	48.78	-53.34	19.65	25.43	-5.78	277.39
J & K	12.53	395.18	382.65	9.76	12.00	2.24	8.82	83.25	-74.43	310.46
CHANDIGARH	0.00	0.00	0.00	10.00	2.35	-7.65	7.05	5.32	1.73	-5.92
MP	26.36	208.68	182.32	420.00	35.21	-384.79	48.69	63.07	-14.37	-216.84
MAHARASHTRA	6.31	35.24	28.93	85.77	212.92	127.15	57.07	43.49	13.58	169.66
GUJARAT	247.01	301.08	54.06	31.80	357.53	325.73	43.14	74.28	-31.14	348.65
CHHATTISGARH	75.60	190.01	114.41	35.51	43.27	7.76	35.73	24.86	10.87	133.04
GOA	0.00	35.34	35.34	16.92	2.37	-14.55	6.25	5.67	0.58	21.37
DAMAN AND DIU	0.00	0.00	0.00	0.00	28.28	28.28	7.70	2.46	5.24	33.52
DADRA & NAGAR	0.00	3.60	3.60	1.51	39.49	37.98	8.69	3.00	5.69	47.27
ANDHRA PRADES	71.37	669.82	598.45	47.57	251.60	204.04	28.05	58.70	-30.65	771.84
KARNATAKA	8.58	0.90	-7.68	55.57	85.13	29.56	53.01	38.40	14.61	36.49
KERALA	0.00	8.22	8.22	1.65	125.74	124.08	25.30	8.23	17.06	149.37
TAMIL NADU	2.57	611.79	609.22	19.02	296.09	277.07	40.82	61.40	-20.58	865.71
PONDICHERRY	0.00	0.00	0.00	0.00	0.00	0.00	3.98	4.30	-0.32	-0.32
TELANGANA	33.99	219.86	185.87	107.32	307.9	200.66	42.90	53.51	-10.61	375.92
WEST BENGAL	189.03	59.30	-129.74	17.97	66.59	48.61	25.18	31.85	-6.67	-87.80
ODISHA	14.13	38.15	24.01	46.36	73.59	27.23	36.73	19.22	17.51	68.75
BIHAR	1.10	18.01	16.91	57.81	154.39	96.58	24.84	37.51	-12.68	100.81
JHARKHAND	0.27	120.44	120.17	14.01	41.88	27.88	19.31	14.80	4.51	152.55
SIKKIM	0.00	6.59	6.59	14.61	0.00	-14.61	3.21	4.24	-1.03	-9.05
DVC	27.84	0.00	-27.84	176.01	0.00	-176.01	32.17	24.72	7.45	-196.41
ARUNACHAL PRA	0.00	4.68	4.68	1.30	5.69	4.39	3.70	5.17	-1.47	7.60
ASSAM	0.00	47.05	47.05	55.64	54.43	-1.21	10.29	13.42	-3.13	42.70
MANIPUR	3.78	30.83	27.05	1.46	1.50	0.04	2.85	2.79	0.06	27.15
MEGHALAYA	3.86	80.41	76.55	0.00	27.62	27.62	3.44	4.75	-1.31	102.86
MIZORAM	0.00	1.41	1.41	4.67	1.41	-3.26	1.75	2.51	-0.76	-2.61
NAGALAND	0.00	5.04	5.04	0.08	3.25	3.17	5.38	1.93	3.45	11.66
TRIPURA	0.00	0.00	0.00	79.58	0.00	-79.58	3.00	11.02	-8.02	-87.59
NTPC -NR	0.00	0.00	0.00	0.00	0.00	0.00	57.35	39.89	17.46	17.46
NHPC STATION	0.00	0.00	0.00	0.00	0.00	0.00	25.66	52.08	-26.42	-26.42
NJPC	0.00	0.00	0.00	0.00	0.00	0.00	2.44	0.00	2.44	2.44
AD HYDRO	0.00	0.00	0.00	9.12	0.00	-9.12	0.82	0.67	0.15	-8.97
KARCHAM WANG	0.00	0.00	0.00	10.54	0.00	-10.54	0.00	0.00	0.00	-10.54
SHREE CEMENT	121.54	0.00	-121.54	5.16	0.00	-5.16	3.17	0.77	2.40	-124.30
LANCO BUDHIL	0.00	0.00	0.00	0.74	0.00	-0.74	1.23	0.00	1.23	0.48
MALANA	0.00	0.00	0.00	0.65	0.00	-0.65	0.25	0.07	0.18	-0.48
URI-2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.43	-1.43	-1.43
SAINJ HEP	0.00	0.00	0.00	9.43	0.00	-9.43	0.00	0.00	0.00	-9.43
NTPC -WR	0.00	0.00	0.00	0.26	0.00	-0.26	75.19	41.49	33.70	33.43
JINDAL POWER	0.00	0.00	0.00	3.47	0.00	-3.47	1.28	1.86	-0.58	-4.06
LANCO_AMK	8.88	0.00	-8.88	0.00	0.00	0.00	1.70	3.10	-1.40	-10.28
NSPCL	0.00	0.00	0.00	0.00	0.00	0.00	3.18	2.26	0.92	0.92
ACBIL	0.68	0.00	-0.68	31.07	0.00	-31.07	3.16	2.42	0.74	-31.01
BALCO	0.00	0.00	0.00	0.52	0.00	-0.52	4.50	1.27	3.23	2.71
RGPL	0.00	0.00	0.00	0.00	0.00	0.00	8.45	6.30	2.15	2.15

CGPL	0.00	0.00	0.00	0.00	0.00	0.00	15.11	9.31	5.81	5.81
EMCO	0.00	0.00	0.00	0.00	0.00	0.00	4.63	2.01	2.62	2.62
ESSAR STEEL	0.00	210.20	210.20	0.00	132.09	132.09	19.95	22.41	-2.46	339.84
KSK MAHANADI	0.00	0.00	0.00	0.00	0.00	0.00	0.78	1.51	-0.73	-0.73
ESSAR POWER	159.46	0.00	-159.46	9.58	0.00	-9.58	2.41	1.61	0.80	-168.24
JINDAL STAGE-II	50.53	0.00	-50.53	30.22	0.00	-30.22	3.78	2.48	1.30	-79.45
DB POWER	57.75	0.00	-57.75	107.09	0.00	-107.09	7.98	1.42	6.56	-158.28
DHARIWAL POWER	0.00	0.00	0.00	0.25	0.00	-0.25	0.21	0.32	-0.11	-0.36
JAYPEE NIGRIE	194.34	0.00	-194.34	12.41	0.00	-12.41	1.93	2.04	-0.11	-206.86
DGEN MEGA POWER	0.00	0.00	0.00	0.00	0.00	0.00	0.96	0.00	0.96	0.96
GMR CHATTISGARH	312.34	0.00	-312.34	2.04	0.00	-2.04	11.62	0.94	10.68	-303.71
KORBA WEST	0.00	0.00	0.00	0.00	0.00	0.00	0.53	0.00	0.53	0.53
MB POWER	35.40	0.00	-35.40	52.91	0.00	-52.91	4.03	5.68	-1.65	-89.96
MARUTI COAL	0.00	0.00	0.00	43.17	0.00	-43.17	0.00	0.00	0.00	-43.17
SPECTRUM	0.00	0.00	0.00	47.99	0.00	-47.99	0.00	0.00	0.00	-47.99
JHABUA POWER	0.71	0.00	-0.71	14.29	0.00	-14.29	4.77	2.52	2.25	-12.75
SASAN UMPP	0.00	0.00	0.00	0.00	0.00	0.00	4.15	40.19	-36.04	-36.04
TRN ENERGY	0.00	0.00	0.00	0.00	0.00	0.00	0.91	1.54	-0.63	-0.63
RKM POWER	0.00	0.00	0.00	0.00	0.00	0.00	0.58	2.25	-1.68	-1.68
SKS POWER	0.00	0.00	0.00	31.86	0.00	-31.86	0.63	0.35	0.28	-31.58
NTPC -SR	0.00	0.00	0.00	12.22	0.00	-12.22	47.87	24.26	23.62	11.39
LANCO KONDAPALLE	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.07	0.33	0.33
SIMHAPURI	0.00	0.00	0.00	0.00	0.00	0.00	0.51	0.00	0.51	0.51
MEENAKSHI	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.00	0.29	0.29
COASTGEN	34.76	0.00	-34.76	99.66	0.00	-99.66	4.71	1.97	2.74	-131.67
THERMAL POWER	0.00	0.00	0.00	0.00	0.00	0.00	2.82	2.05	0.77	0.77
IL&FS	0.00	0.00	0.00	2.83	0.00	-2.83	1.11	0.59	0.53	-2.31
NLC	0.00	0.00	0.00	52.95	0.00	-52.95	16.33	24.26	-7.93	-60.88
SEMBCORP	515.6	0.00	-515.60	149.09	0.00	-149.09	4.79	1.94	2.85	-661.84
NETCL VALLUR	0.00	0.00	0.00	0.00	0.00	0.00	11.96	2.45	9.51	9.51
NTPC -ER	0.00	0.00	0.00	0.00	0.00	0.00	57.70	25.27	32.43	32.43
MAITHON POWER	0.00	0.00	0.00	0.00	0.00	0.00	2.42	3.09	-0.67	-0.67
ADHUNIK POWER	117.7	0.00	-117.74	0.00	0.00	0.00	1.24	0.80	0.44	-117.30
CHUZACHEN HEP	3.20	0.00	-3.20	0.50	0.00	-0.50	0.14	0.10	0.04	-3.65
RANGIT HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.47	-0.20	-0.20
GMR KAMALANGA	3.18	0.00	-3.18	14.95	0.00	-14.95	4.91	2.50	2.40	-15.73
JITPL	6.65	0.00	-6.65	0.01	0.00	-0.01	0.94	1.05	-0.11	-6.77
TEESTA HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.47	3.03	-2.56	-2.56
DAGACHU	15.20	0.00	-15.20	0.00	0.00	0.00	4.87	0.18	4.69	-10.50
JORETHANG	7.67	0.00	-7.67	1.04	0.00	-1.04	0.63	0.65	-0.02	-8.73
NEPAL(NVVN)	0.00	157.48	157.48	0.00	0.00	0.00	6.41	1.77	4.64	162.12
BANGLADESH	0.00	135.09	135.09	0.00	0.00	0.00	7.64	6.73	0.91	135.99
TEESTA STG3	0.00	0.00	0.00	103.79	0.00	-103.79	1.78	0.82	0.96	-102.83
DIKCHU HEP	0.00	0.00	0.00	4.83	0.00	-4.83	0.26	0.30	-0.04	-4.88
TASHIDENG HEP	9.10	0.00	-9.10	1.35	0.00	-1.35	1.71	0.91	0.81	-9.64
BRBCL,NABINAGAR	0.00	0.00	0.00	10.15	0.00	-10.15	3.59	2.38	1.21	-8.94
NTPC -NER	0.11	0.00	-0.11	0.41	0.00	-0.41	0.00	0.00	0.00	-0.52
NEEPCO STATION	0.00	0.00	0.00	27.19	0.00	-27.19	1.78	14.24	-12.47	-39.66
RANGANADI HEP	0.00	0.00	0.00	0.72	0.00	-0.72	1.67	0.51	1.15	0.44
DOYANG HEP	0.00	0.00	0.00	0.24	0.00	-0.24	0.20	0.21	-0.01	-0.25
ONGC PALATANA	0.00	0.00	0.00	0.02	0.00	-0.02	0.00	0.00	0.00	-0.02
LOKTAK	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.41	-0.10	-0.10
PARE HEP	0.00	0.00	0.00	5.57	0.00	-5.57	0.00	0.00	0.00	-5.57

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 March, 2019

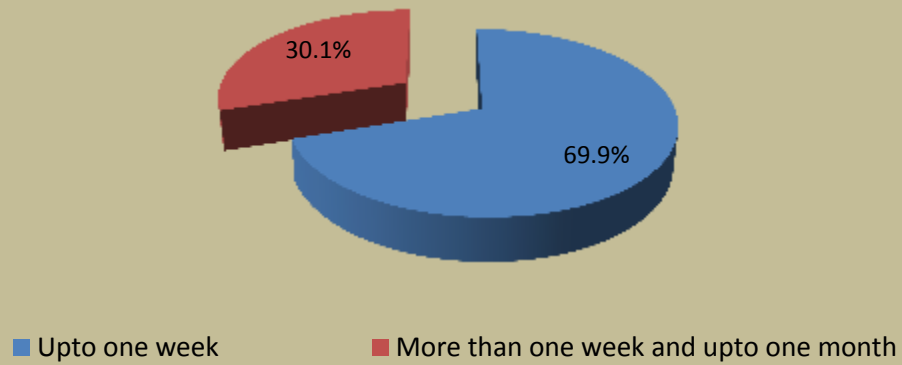


Figure-8: Forward Curve based on Prices of Bilateral Contracts

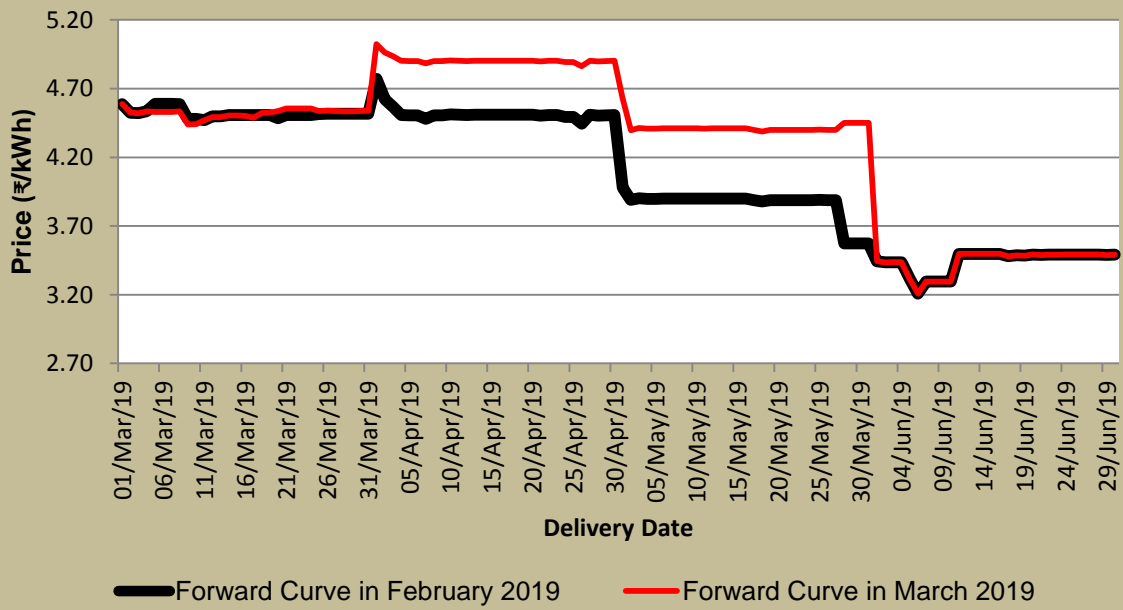


Table-20 : VOLUME AND PRICE OF RENEWABLE ENERGY CERTIFICATES (RECs) TRANSACTIONED THROUGH POWER EXCHANGES, FEBRUARY 2019					
Sr.No.	Details of REC Transactions	IEX		PXIL	
		Solar	Non-Solar	Solar	Non Solar
A	Volume of Buy Bid	567273	928439	245778	282100
B	Volume of Sell Bid	688507	1446856	119081	183516
C	Ratio of Buy Bid to Sell Bid Volume	0.82	0.64	2.06	1.54
D	Market Clearing Volume (MWh)	383708	654592	25056	156493
E	Weighted average Market Clearing Price (₹/MWh)	1500	1395	1908	1555

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>