

Monthly Report on Short-term Transactions of Electricity in India

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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
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
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
J&K	Jammu & Kashmir
JAYPEE NIGRIE	Jaypee Nigrie Super 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	Jaypee Karcham Hydro Corporation Limited
KORBA WEST POWER	Korba West Power Company Limited
KSK MAHANADI	KSK Mahanadi Power Ltd
LANKO 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

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
NTPC STATIONS	National Thermal Power Corporation Ltd. Stations
NJPC	Nathpa Jhakri Hydroelectric Power Station
NLDC	National Load Despatch Centre
NSPCL	NTPC - SAIL Power Company Private Limited
OTC	Over The Counter
PX	Power Exchange
PXIL	Power Exchange India Limited
RANGIT HEP	Rangit Hydro electric power project
REC	Renewable Energy Certificate
RGPPL	Ratnagiri Gas and Power Private Limited
RLDC	Regional Load Despatch Centre
RTC	Round The Clock
SHREE CEMENT	Shree Cement Limited
SIMHAPURI	Simhapuri Energy Private Limited
SPECTRUM	Spectrum Power Generation Ltd
STERLITE	Sterlite Energy Limited
TEESTA HEP	Teesta Hydro Electric Power Project
THERMAL POWERTECH	Thermal Powertech Corporation India Limited
URI2	URI2 Hydro Power Project
UT	Union Territory
VANDANA VIDYUT	Vandana Vidyut Limited

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, 2016** are as under:

I: Volume of Short-term Transactions of Electricity

During March 2016, total electricity generation excluding generation from renewable and captive power plants in India was 96075.12 MUs (Table-1).

Of the total electricity generation, 8626.59 MUs (8.98%) was transacted through short-term, comprising of 3926.57 MUs (4.09%) through bilateral (through traders and term-ahead contracts on power exchanges and directly between distribution companies), followed by 3061.33 MUs (3.19%) through day ahead collective transactions on power exchanges (IEX and PXIL) and 1638.69 MUs (1.71%) through DSM (Table-1 & Figure-2).

Of the total short-term transactions, bilateral constitutes 45.52% (25.27% through traders and term-ahead contracts on power exchanges and 20.24% directly between distribution companies) followed by 35.49% through day ahead collective transactions on power exchanges and 19.00% 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 40 trading licensees as on March, 2016. In March 2016, 22 trading licensees were engaged in short term trading. Top 5 trading licensees had a share of 71.68% in the total volume traded by all the licensees. These are PTC India Ltd., Tata Power Trading Company (P) Ltd., Mittal Processors (P) Ltd., JSW Power Trading Company Ltd., and Adani Enterprises Ltd.

Herfindahl-Hirschman Index (HHI) has been used for measuring the competition among the trading licensees. Increase in the HHI generally indicates a decrease in competition and an 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 0.1331 for the month of March 2016, which indicates non-concentration of market power (Table-2).

The volume of electricity transacted through IEX and PXIL in the day ahead market was 3059.48 MUs and 1.85 MUs respectively. The volume of total buy bids and sell bids was 4016.25 MUs and 5092.22 MUs respectively in IEX while the same was 12.34 MUs and 6.82 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 28.98 MUs and 16.75 MUs respectively (Table-6 & Table-7).

II: Price of Short-term Transactions of Electricity

(i) *Price of electricity transacted through Traders:* The minimum, maximum and weighted average sale prices have been computed for the electricity transacted through traders and the sale prices were ₹2.25/kWh, ₹6.54/kWh and ₹3.90/kWh respectively (Table-3). The weighted average sale prices were also computed for the transactions during Round

the Clock (RTC), Peak and Off-Peak periods separately, and the sale prices were ₹3.97/kWh, ₹2.48/kWh and ₹4.14/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 separately. The minimum, maximum and weighted average prices were ₹0.70/kWh, ₹12.98/kWh and ₹2.56/kWh respectively in IEX and ₹2.20/kWh, ₹3.20/kWh and ₹2.46/kWh respectively in PXIL (Table-5).

The price of electricity transacted through IEX and PXIL in the term-ahead market was ₹3.60/kWh and ₹2.64/kWh respectively (Table-6 and Table-7).

(iii) Price of electricity transacted through DSM: The average deviation settlement price was ₹1.72/kWh. The minimum and maximum deviation settlement prices were ₹0.00/kWh and ₹6.36/kWh respectively (Table-8).

The prices of electricity transacted through trading licensees, power exchanges and DSM and their comparison is shown in Table-18 & 19, Figure-5 & 6.

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

Of the total bilateral transactions, top 5 regional entities sold 46.01% of the volume, and these were Delhi, Haryana, Thermal Powertech Corporation India Ltd., GMR Kamalanga Energy Ltd., and Simhapuri Energy Private Ltd. Top 5 regional entities purchased 53.86% of the volume, and these were Telangana, Chhattisgarh, Maharashtra, Gujarat and Jammu & Kashmir (Table-9& 10).

Of the total power exchange transactions, top 5 regional entities sold 43.28% of the volume, and these were Jindal India Thermal Power Ltd., Sterlite Energy Ltd., Gujarat, Korba West Power Company Ltd. and Jindal Power Ltd. Top 5 regional entities purchased 49.35% of the volume, and these were Rajasthan, Essar Steel Ltd., Gujarat, Bihar, and Haryana (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 underdrew 35.10% of the volume, and these were Maharashtra, NTPC Stations (Western Region), Uttar Pradesh, Madhya Pradesh and Haryana (Table-13). Top 5 regional entities overdrew 74.17% of the volume, and these were Uttar Pradesh, Karnataka, Rajasthan, NTPC Stations (Eastern Region) and Kerala (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 Jindal India Thermal Power Ltd, Thermal Powertech Corporation India Ltd., Delhi, GMR Kamalanga Energy Ltd. and Korba West Power Company Ltd. Top 5 electricity purchasing regional entities were Telangana, Bihar, Chhattisgarh, Maharashtra 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 March 2016, congestion occurred in both the power exchanges. 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

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.

difference between unconstrained cleared volume (volume of electricity that would have been scheduled, had there been no congestion) and actual cleared volume.

During the month, the volume of electricity that could not be cleared in IEX and PXIL due to congestion was 8.22% and 6.10% of the unconstrained cleared volume respectively. In terms of time, congestion occurred was 79.37% in IEX and 14.05% in PXIL (Table-16).

V: Bilateral Contracts executed by Traders

In addition to the analysis on short-term transactions of electricity in March 2016, this section covers an analysis of bilateral contracts executed in April, 2016.

(i) Duration of bilateral contracts: During April, 2016, a total of 37 bilateral contracts (excluding banking/swap contracts) have been executed by traders for the volume of 1568.15MUs. Figure-7 shows the percentage of contracts categorized according to the period of power supply. It can be observed from the figure that 62.16% of the bilateral contracts were executed for duration of up to one week, 35.14% of the contracts were executed for duration of more than a week and upto one month and 2.70% of the contracts were executed for more than one month and upto three months.

During the month, 15 banking/swapping bilateral contracts were also executed for the volume of 495.96MUs.

(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 April, 2016 to May, 2016 based on bilateral contracts⁴ executed till April, 2016. Forward curves have been drawn for the contracts executed in April, 2016 and March, 2016 for the

⁴Excluding Banking/Swapping contracts

purpose of comparison. It is observed that there was no change in forward prices for the contracts executed in April, 2016 and the contracts executed in March, 2016.

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 session was held on power exchanges in March, 2011.

The details of REC transactions for the month of March, 2016 are shown in Table-20. The market clearing volume of solar RECs transacted on IEX and PXIL were 108797 and 43269 respectively and the market clearing price of these RECs was ₹3500/MWh on both the power exchanges. Market clearing volume of non-solar RECs transacted on IEX and PXIL were 600940 and 513379 respectively and the market clearing price of these RECs was ₹1500/MWh on both the power exchanges.

The gap between the volume of buy and sell bids of RECs placed through power exchanges shows that there was less demand for both solar and non-solar RECs. For Solar RECs, the ratio of buy bids to sell bids was 0.051 and 0.034 for IEX and PXIL respectively. For non-solar RECs, the ratio of buy bids to sell bids was 0.077 and 0.089 for IEX and PXIL respectively.

VII: Inferences:

- The percentage of short-term transactions of electricity to total electricity generation was 8.98%.
- Of the total short-term transactions of electricity, 45.52% was transacted through bilateral (through traders and term ahead contracts on power exchanges and directly by distribution companies), followed by 35.49% through power exchanges and 19.00% through DSM.
- Top 5 trading licensees had a share of 71.68% 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 0.1331, indicating non-concentration of market power.
- The weighted average price of electricity transacted through trading licensees was ₹3.90/kWh. The weighted average prices of electricity transacted through IEX and PXIL were ₹2.56/kWh and ₹2.46/kWh respectively.
- The average price of electricity transacted through DSM was ₹1.72/kWh .
- Top 5 electricity selling regional entities were Jindal India Thermal Power Ltd, Thermal Powertech Corporation India Ltd, Delhi, GMR Kamalanga Energy Ltd. and Korba West Power Company Ltd.. Top 5 electricity purchasing regional entities were Telangana, Bihar, Chhattisgarh, Maharashtra and Essar Steel Ltd.
- The volume of electricity that could not be cleared due to congestion was 8.22% and 6.10% of the unconstrained cleared volume in IEX and PXIL, respectively. In terms of time, congestion occurred was 79.37% of the time in IEX and 14.05% of the time in PXIL.
- In April 2016, 62.16% of the bilateral contracts were executed for duration of up to one week, 35.14% of the contracts were executed for duration of more than a week and upto one month and 2.70% of the contracts were executed for more than one month and upto three months .

- There was no change in the forward prices for the contracts executed in April, 2016 and the contracts executed in March, 2016.
- The market clearing volume of solar RECs transacted on IEX and PXIL were 108797 and 43269 respectively and the market clearing price of these RECs was ₹3500/MWh on both the power exchanges. Market clearing volume of non-solar RECs transacted on IEX and PXIL were 600940 and 513379 respectively and the market clearing price of these RECs was ₹1500/MWh on both the power exchanges.

Table-1: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (ALL INDIA), MARCH 2016				
Sr.No	Short-term transactions	Volume (MUs)	% to Volume of short-term transactions	% to Total Generation
1	Bilateral	3926.57	45.52	4.09
	(i) Through Traders and PXs	2180.29	25.27	2.27
	(ii) Direct	1746.27	20.24	1.82
2	Through Power Exchanges	3061.33	35.49	3.19
	(i) IEX	3059.48	35.47	3.18
	(ii) PXIL	1.85	0.02	0.002
3	Through DSM	1638.69	19.00	1.71
	Total	8626.59	-	8.98
	Total Generation	96075.12	-	-

Source: NLDC

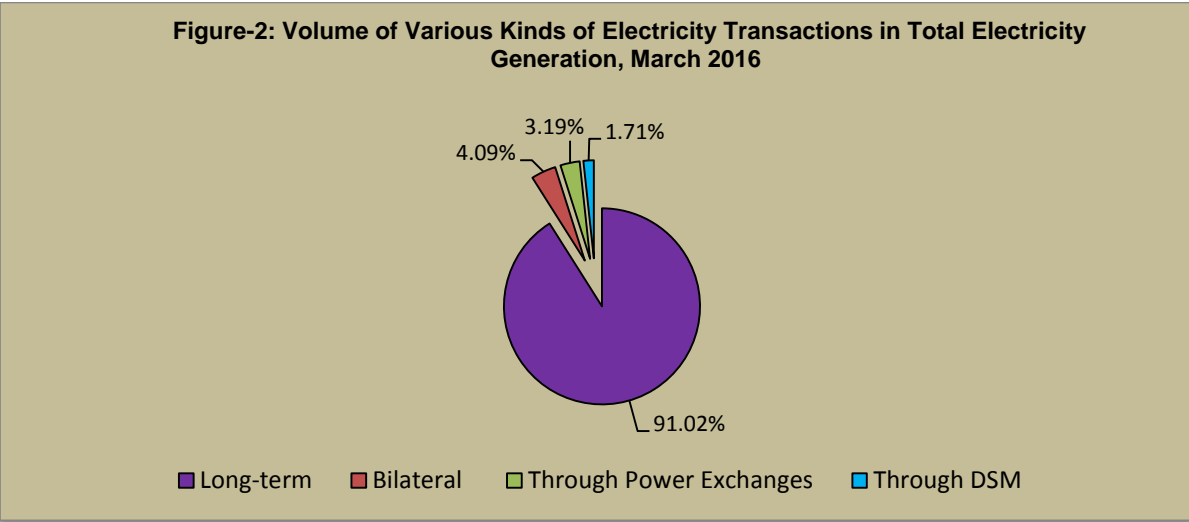
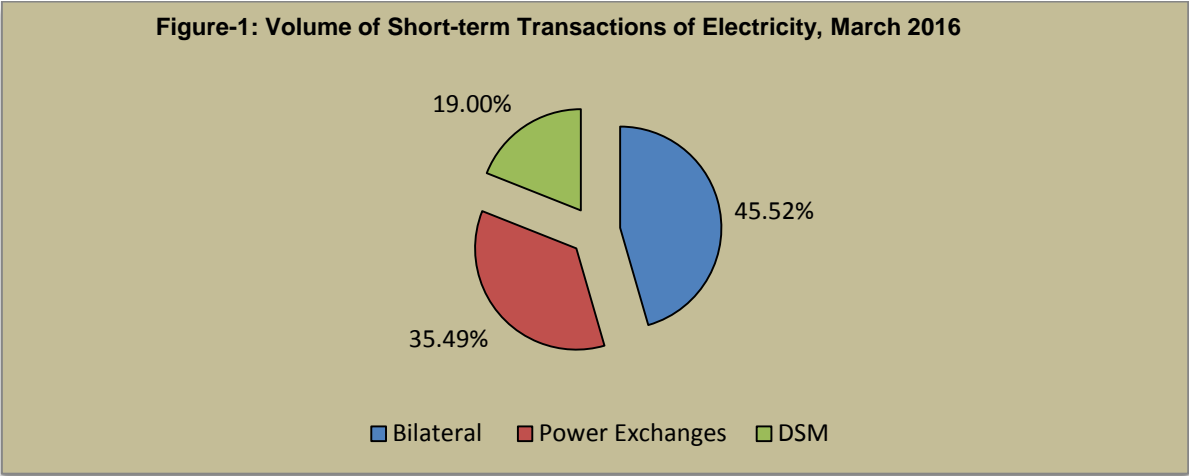


Figure-3: Volume of Short-term Transactions of Electricity, March 2016 (Day-wise)

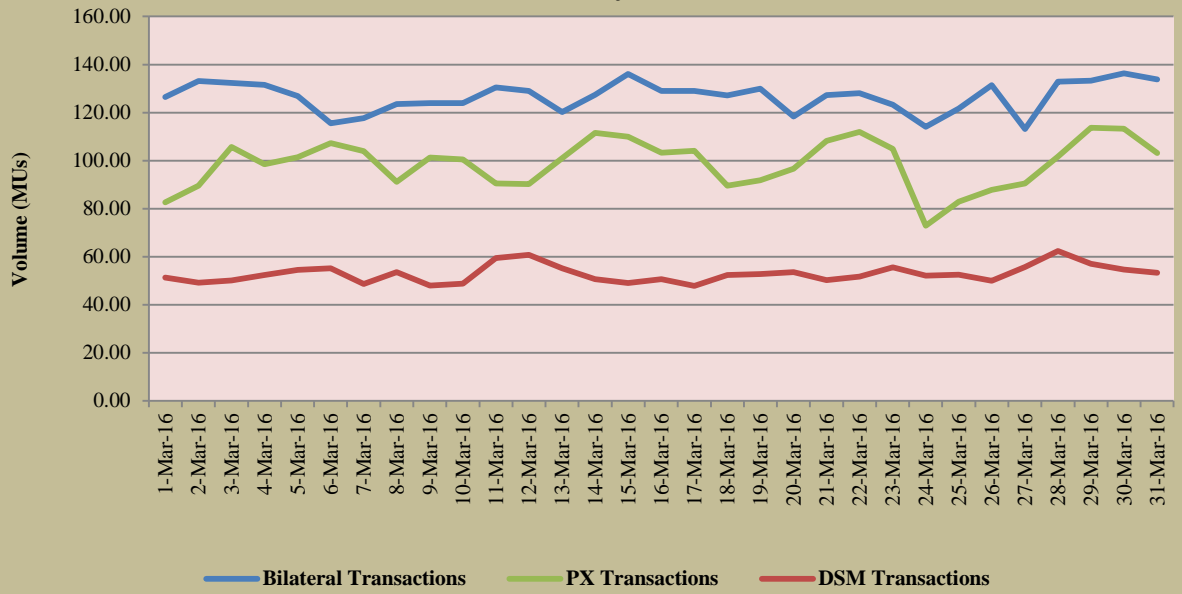


Table-2: PERCENTAGE SHARE OF ELECTRICITY TRANSACTED BY TRADING LICENSEES, MARCH 2016			
Sr.No	Name of the Trading Licensee	% Share in total Volume transacted by Trading Licensees	Herfindahl-Hirschman Index
1	PTC India Ltd.	25.34	0.0642
2	Tata Power Trading Company (P) Ltd.	13.74	0.0189
3	Mittal Processors (P) Ltd.	11.83	0.0140
4	JSW Power Trading Company Ltd	10.46	0.0109
5	Adani Enterprises Ltd.	10.30	0.0106
6	Manikaran Power Ltd.	8.73	0.0076
7	Arunachal Pradesh Power Corporation (P) ltd	5.17	0.0027
8	NTPC Vidyut Vyapar Nigam Ltd.	4.72	0.0022
9	GMR Energy Trading Ltd.	3.43	0.0012
10	Knowledge Infrastructure Systems (P) Ltd	2.26	0.0005
11	Instinct Infra & Power Ltd.	1.02	0.0001
12	RPG Power Trading Company Ltd.	0.92	0.0001
13	National Energy Trading & Services Ltd.	0.48	0.0000
14	Shree Cement Ltd.	0.43	0.0000
15	Gita Power & Infrastructure Private Limited	0.28	0.0000
16	Statkraft Markets Private Ltd.	0.26	0.0000
17	My Home Power Private Ltd.	0.17	0.0000
18	Customized Energy Solutions India (P) Ltd.	0.13	0.0000
19	Phillip Commodities India (P) Ltd.	0.11	0.0000
20	Jaiprakash Associates Ltd.	0.09	0.0000
21	Essar Electric Power Development Corp. Ltd.	0.07	0.0000
22	Ambitious Power Trading Company Ltd.	0.06	0.0000
TOTAL		100.00%	0.1331
Top 5 trading licensees		71.68%	
<i>Note 1: Volume of electricity transacted by the trading licensees includes bilateral transactions (inter-state & intra-state) and the transactions undertaken through power exchanges.</i>			
<i>Note 2: Volume of electricity transacted by Global Energy Ltd is not included.</i>			
<i>Source: Information submitted by trading licensees</i>			

Figure- 4 : Percentage Share of Electricity Transacted by Trading Licensees, March 2016

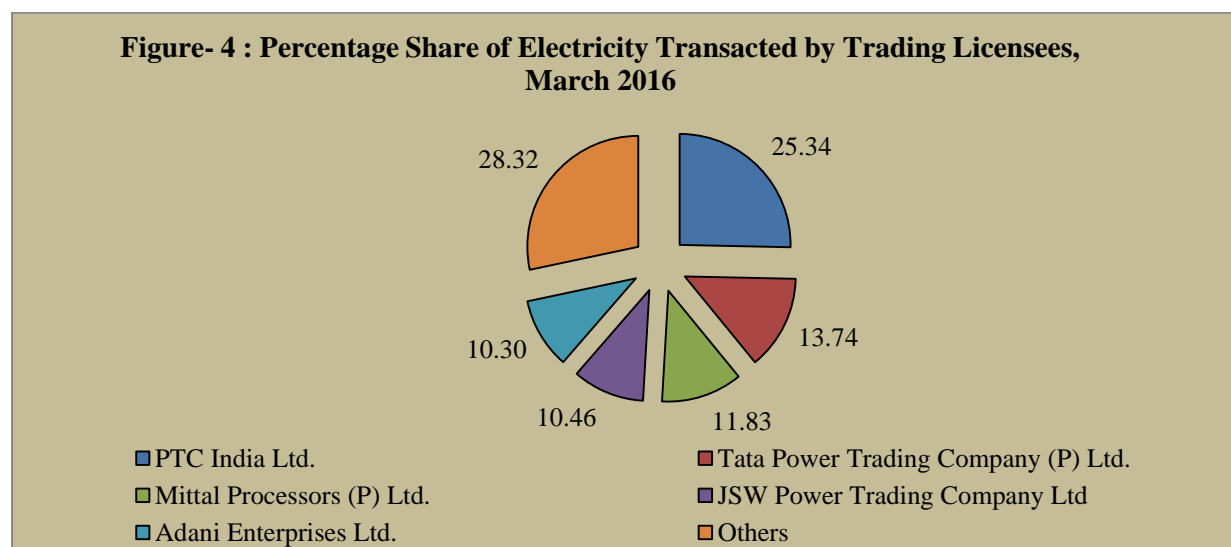


Table-3: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS, MARCH 2016		
Sr.No	Item	Sale Price of Traders (₹/kWh)
1	Minimum	2.25
2	Maximum	6.54
3	Weighted Average	3.90

Source: Information submitted by trading licensees

Table-4: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS (TIME-WISE), MARCH 2016		
Sr.No	Period of Trade	Sale Price of Traders (₹/kWh)
1	RTC	3.97
2	PEAK	2.48
3	OFF PEAK	4.14

Source: Information submitted by trading licensees

Table-5: PRICE OF ELECTRICITY TRANSACTED THROUGH POWER EXCHANGES, MARCH 2016			
Sr.No	ACP	Price in IEX (₹/kWh)	Price in PXIL (₹/kWh)
1	Minimum	0.70	2.20
2	Maximum	12.98	3.20
3	Weighted Average	2.56	2.46

Source: Information submitted by IEX and PXIL

Table-6: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF IEX, MARCH 2016			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	13.16	2.82
2	Day Ahead Contingency Contracts	15.82	4.25
	Total	28.98	3.60

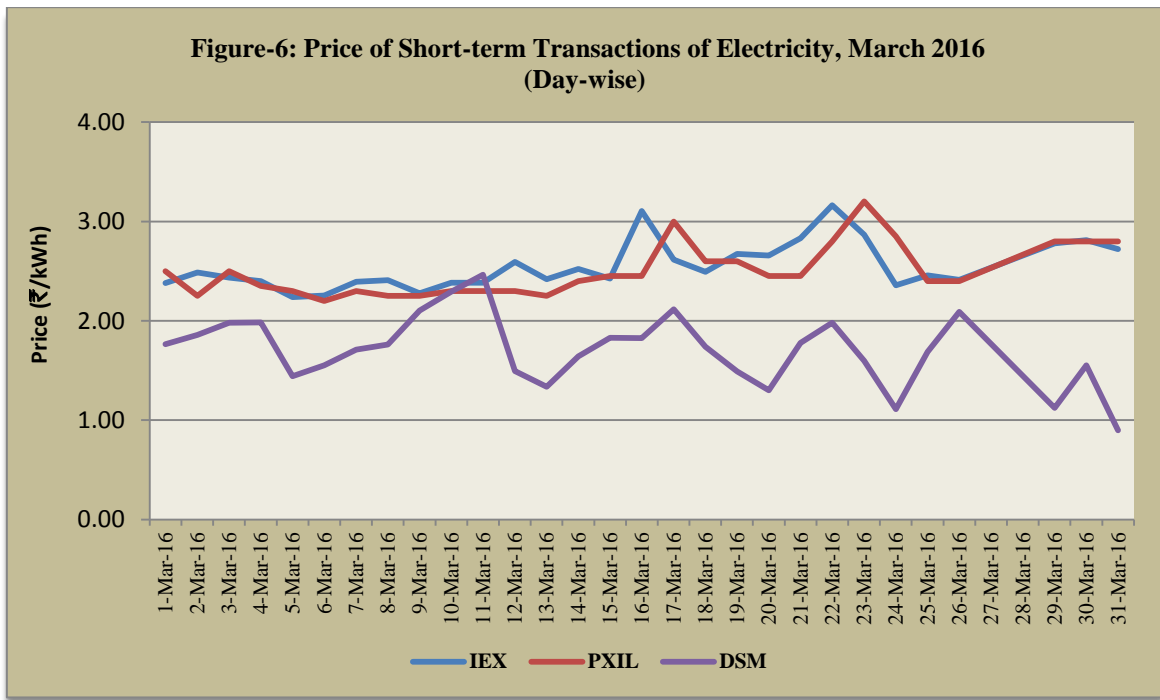
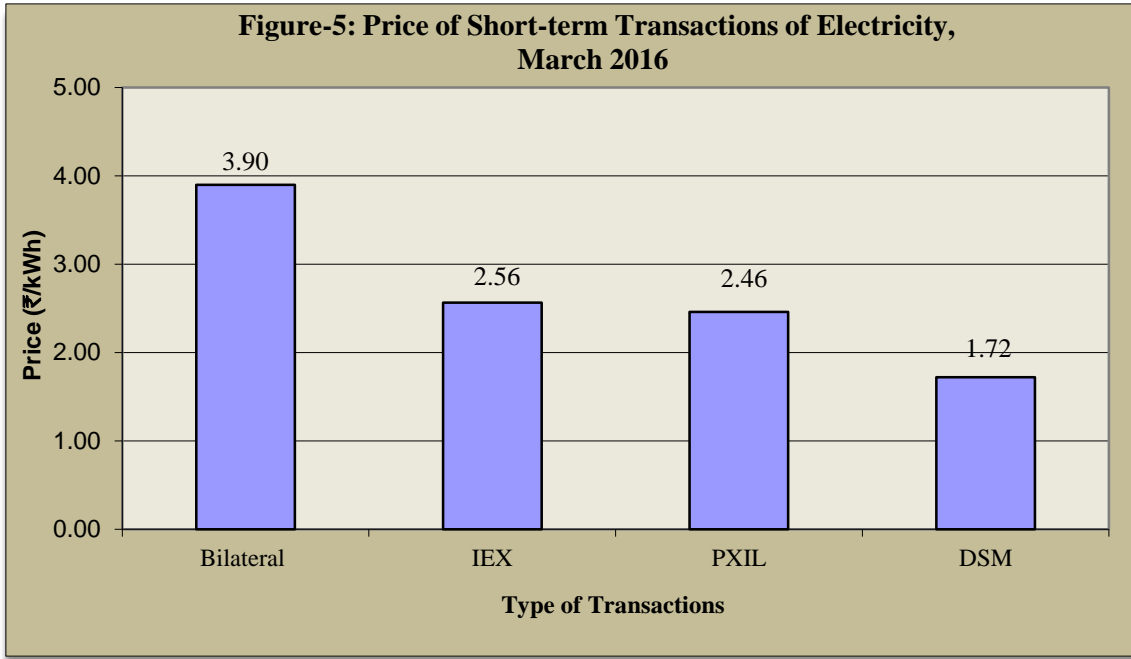
Source: IEX

Table-7: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF PXIL, MARCH 2016			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Day Ahead Contingency Contracts	16.75	2.67
	Total	16.75	2.64

Source: PXIL

Table-8: PRICE OF ELECTRICITY TRANSACTED THROUGH DSM, MARCH 2016		
Sr.No	Item	Price in All India Grid (₹/kWh)
1	Minimum	0.00
2	Maximum	6.36
3	Average	1.72

Source: NLDC



**Table-9: VOLUME OF ELECTRICITY SOLD THROUGH BILATERAL,
MARCH 2016**

Name of the State/UT/Other Regional Entity	Volume of Sale (MUs)	% of Volume
DELHI	501.60	11.82
HARYANA	442.03	10.42
THERMAL POWERTECH	372.66	8.78
GMR KAMALANGA	346.46	8.17
SIMHAPURI	289.24	6.82
GUJARAT	287.96	6.79
UTTAR PRADESH	233.13	5.49
JITPL	200.53	4.73
KORBA WEST POWER	175.58	4.14
MP	150.58	3.55
RAJASTHAN	148.06	3.49
JINDAL POWER	146.81	3.46
SHREE CEMENT	141.09	3.33
MEENAKSHI	101.70	2.40
STERLITE	94.47	2.23
ADHUNIK POWER LTD	90.25	2.13
PUNJAB	90.09	2.12
ANDHRA PRADESH	83.51	1.97
GMR CHHATTISGARH	64.30	1.52
LANKO KONDAPALLI	35.70	0.84
ODISHA	35.60	0.84
HIMACHAL PRADESH	30.72	0.72
J & K	25.42	0.60
DVC	24.46	0.58
MEGHALAYA	22.13	0.52
DB POWER	19.73	0.46
COASTGEN	16.82	0.40
TELANGANA	13.08	0.31
CHHATTISGARH	12.63	0.30
ACBIL	12.28	0.29
JINDAL STAGE-II	12.24	0.29
WEST BENGAL	5.36	0.13
NSPCL	5.04	0.12
MANIPUR	3.88	0.09
MAHARASHTRA	3.57	0.08
DAGACHU	3.57	0.08
TRIPURA	0.53	0.01
DCPP	0.05	0.00
Total	4242.83	100.00
Volume Sold by top 5 Regional Entities	1951.99	46.01

**Table-10: VOLUME OF ELECTRICITY PURCHASED THROUGH BILATERAL,
MARCH 2016**

Name of the State/UT/Other Regional Entity	Volume of Purchase (MUs)	% of Volume
TELANGANA	571.73	14.76
CHHATTISGARH	504.27	13.02
MAHARASHTRA	359.78	9.29
GUJARAT	329.69	8.51
J & K	320.74	8.28
HARYANA	282.44	7.29
HIMACHAL PRADESH	235.59	6.08
KERALA	206.82	5.34
UTTAR PRADESH	195.23	5.04
BIHAR	169.60	4.38
UTTARAKHAND	153.00	3.95
JHARKHAND	90.22	2.33
MEGHALAYA	73.88	1.91
ANDHRA PRADESH	68.60	1.77
TAMIL NADU	68.58	1.77
WEST BENGAL	62.81	1.62
ASSAM	37.00	0.96
KARNATAKA	31.00	0.80
MANIPUR	26.65	0.69
RAJASTHAN	25.14	0.65
ODISHA	21.85	0.56
MP	18.38	0.47
GOA	6.60	0.17
DADRA & NAGAR HAVELI	6.06	0.16
PUNJAB	3.78	0.10
ESSAR STEEL	1.89	0.05
DELHI	1.38	0.04
DAMAN AND DIU	0.82	0.02
TOTAL	3873.52	100.00
Volume Purchased by top 5 Regional Entities	2086.20	53.86

**Table-11: VOLUME OF ELECTRICITY SOLD THROUGH POWER EXCHANGES,
MARCH 2016**

Name of the State/UT/Other Regional Entity	Volume of Sale (MUs)	% of Volume
JITPL	415.03	13.56
STERLITE	281.47	9.20
GUJARAT	228.85	7.48
KORBA WEST POWER	203.91	6.66
JINDAL POWER	195.51	6.39
DB POWER	154.81	5.06
GMR CHHATTISGARH	119.15	3.89
HIMACHAL PRADESH	108.10	3.53
MP	94.29	3.08
THERMAL POWERTECH	93.34	3.05
HARYANA	79.21	2.59
DCPP	79.14	2.59
SHREE CEMENT	71.85	2.35
KARCHAM WANGTOO	63.29	2.07
RAJASTHAN	61.27	2.00
CHHATTISGARH	59.58	1.95
ADHUNIK POWER LTD	55.61	1.82
TRIPURA	55.60	1.82
BALCO	52.97	1.73
MAHARASHTRA	45.59	1.49
ODISHA	43.73	1.43
DVC	43.29	1.41
MEENAKSHI	40.94	1.34
DELHI	40.69	1.33
ACBIL	38.04	1.24
NHPC STATIONS	31.03	1.01
SPECTRUM	28.46	0.93
TELANGANA	25.88	0.85
NJPC	23.43	0.77
PUNJAB	22.22	0.73
JINDAL STAGE-II	22.17	0.72
J & K	20.68	0.68
WEST BENGAL	20.15	0.66
ASSAM	17.81	0.58
AD HYDRO	13.15	0.43
JORETHANG	12.45	0.41
MANIPUR	11.07	0.36
COASTGEN	10.96	0.36
ANDHRA PRADESH	10.67	0.35
CHUZACHEN HEP	10.43	0.34
CHANDIGARH	8.89	0.29
SIKKIM	6.77	0.22
MEGHALAYA	6.38	0.21
DHARIWAL POWER	5.80	0.19
UTTARAKHAND	4.17	0.14
JAYPEE NIGRIE	3.86	0.13
KERALA	3.60	0.12

GMR KAMALANGA	3.45	0.11
MAITHON POWER LTD	3.40	0.11
SIMHAPURI	2.88	0.09
GOA	2.76	0.09
MIZORAM	1.89	0.06
MALANA	0.80	0.03
LANCO BUDHIL	0.55	0.02
Total	3061.05	100.00
Volume sold by top 5 Regional Entities	1324.78	43.28

**Table-12: VOLUME OF ELECTRICITY PURCHASED THROUGH POWER EXCHANGES,
MARCH 2016**

Name of the State/UT/Other Regional Entity	Volume of Purchase (MUs)	% of Volume
RAJASTHAN	404.21	13.20
ESSAR STEEL	335.78	10.97
GUJARAT	308.41	10.07
BIHAR	251.41	8.21
HARYANA	210.86	6.89
WEST BENGAL	173.11	5.65
PUNJAB	163.34	5.34
DELHI	150.32	4.91
MAHARASHTRA	148.05	4.84
TELANGANA	130.98	4.28
KARNATAKA	130.89	4.28
ANDHRA PRADESH	127.93	4.18
UTTARAKHAND	124.14	4.06
UTTAR PRADESH	80.76	2.64
KERALA	67.64	2.21
HIMACHAL PRADESH	50.72	1.66
ASSAM	45.21	1.48
DAMAN AND DIU	40.28	1.32
ODISHA	27.27	0.89
GOA	16.32	0.53
MP	15.81	0.52
TAMIL NADU	14.12	0.46
ARUNACHAL PRADESH	11.31	0.37
NAGALAND	10.80	0.35
CHHATTISGARH	7.97	0.26
MEGHALAYA	5.71	0.19
TRIPURA	2.68	0.09
MANIPUR	2.24	0.07
J & K	2.17	0.07
MIZORAM	0.76	0.02
CHANDIGARH	0.16	0.01
TOTAL	3061.33	100.00
Volume purchased by top 5 Regional Entities	1510.66	49.35

Table-13: VOLUME OF ELECTRICITY UNDER DRAWAL (EXPORTED) THROUGH DSM, MARCH 2016

Name of the State/UT/Other Regional Entity	Volume of Under drawal (MUs)	% of Volume
MAHARASHTRA	129.60	9.46
NTPC STATIONS-WR	123.04	8.98
UTTAR PRADESH	79.44	5.80
MP	76.47	5.58
HARYANA	72.19	5.27
GUJARAT	67.61	4.94
TAMIL NADU	67.07	4.90
NHPC STATIONS	65.38	4.77
ANDHRA PRADESH	49.12	3.59
CHHATTISGARH	48.77	3.56
PUNJAB	47.90	3.50
NTPC STATIONS-NR	45.85	3.35
RAJASTHAN	45.19	3.30
TELANGANA	35.41	2.59
BIHAR	32.11	2.34
DVC	31.65	2.31
ESSAR STEEL	20.32	1.48
HIMACHAL PRADESH	20.23	1.48
WEST BENGAL	18.23	1.33
NTPC STATIONS-ER	17.86	1.30
JHARKHAND	17.08	1.25
KARNATAKA	15.45	1.13
UTTARAKHAND	14.70	1.07
NTPC STATIONS-SR	13.69	1.00
ODISHA	12.56	0.92
CGPL	10.70	0.78
RGPPPL(DABHOL)	9.20	0.67
DELHI	8.64	0.63
JINDAL POWER	8.31	0.61
NEEPCO STATIONS	7.57	0.55
MB POWER	7.42	0.54
SIKKIM	7.14	0.52
BALCO	7.06	0.52
DADRA & NAGAR HAVELI	7.05	0.51
PONDICHERRY	6.94	0.51
THERMAL POWERTECH	6.70	0.49
ADHUNIK POWER LTD	6.40	0.47
GOA	6.14	0.45
ASSAM	5.81	0.42
NJPC	5.76	0.42
JAYPEE NIGRIE	5.53	0.40
MEGHALAYA	5.44	0.40
MAITHON POWER LTD	5.14	0.38
TEESTA HEP	4.89	0.36
JITPL	4.72	0.34
DCPP	4.69	0.34
KSK MAHANADI	3.88	0.28
LANKO_AMK	3.79	0.28
DB POWER	3.78	0.28

TRIPURA	3.45	0.25
KORBA WEST POWER	3.39	0.25
CHANDIGARH	3.26	0.24
GMR CHHATTISGARH	3.21	0.23
STERLITE	2.84	0.21
URI-2	2.73	0.20
MANIPUR	2.66	0.19
NSPCL	2.62	0.19
CHUZACHEN HEP	2.17	0.16
SIMHAPURI	2.09	0.15
KERALA	2.00	0.15
DAMAN AND DIU	1.93	0.14
EMCO	1.89	0.14
GMR KAMALANGA	1.77	0.13
RANGIT HEP	1.74	0.13
ACBIL	1.67	0.12
COASTGEN	1.62	0.12
JORETHANG	1.24	0.09
DGEN MEGA POWER	1.24	0.09
KARCHAM WANGTOO	1.17	0.09
AD HYDRO	0.93	0.07
LOKTAK	0.90	0.07
MEENAKSHI	0.69	0.05
SHREE CEMENT	0.57	0.04
DHARIWAL POWER	0.49	0.04
ARUNACHAL PRADESH	0.46	0.03
NAGALAND	0.45	0.03
MIZORAM	0.43	0.03
DAGACHU	0.18	0.01
LANCO BUDHIL	0.18	0.01
MALANA	0.05	0.00
VANDANA VIDYUT	0.03	0.00
Total	1369.65	100.00
Volume Exported by top 5 Regional Entities	480.73	35.10

Table-14: VOLUME OF ELECTRICITY OVER DRAWAL (IMPORTED) THROUGH DSM, MARCH 2016		
Name of the State/UT/Other Regional Entity	Volume of Over drawal (MUs)	% of Volume
UTTAR PRADESH	99.38	5.80
KARNATAKA	89.90	5.25
RAJASTHAN	87.09	5.08
NTPC STATIONS-ER	86.52	5.05
KERALA	73.47	4.29
PUNJAB	64.31	3.75
BIHAR	62.90	3.67
NTPC STATIONS-WR	57.92	3.38
WEST BENGAL	56.32	3.29
ODISHA	55.93	3.27
UTTARAKHAND	55.71	3.25
STERLITE	54.13	3.16
ASSAM	52.98	3.09
DELHI	48.25	2.82
JHARKHAND	46.29	2.70
GUJARAT	45.24	2.64
NTPC STATIONS-NR	45.18	2.64
HARYANA	42.16	2.46
MAHARASHTRA	41.13	2.40
KORBA WEST POWER	38.13	2.23
DVC	34.08	1.99
HIMACHAL PRADESH	33.23	1.94
TELANGANA	27.36	1.60
NTPC STATIONS-SR	27.22	1.59
ESSAR STEEL	26.60	1.55
CHHATTISGARH	26.34	1.54
GOA	24.06	1.41
BALCO	20.88	1.22
ANDHRA PRADESH	19.65	1.15
ARUNACHAL PRADESH	18.59	1.09
MP	18.24	1.07
TAMIL NADU	17.66	1.03
JITPL	16.12	0.94
TRIPURA	14.47	0.85
DAMAN AND DIU	11.90	0.69
CHANDIGARH	11.53	0.67
CGPL	11.30	0.66
GMR CHHATTISGARH	10.89	0.64
MIZORAM	10.35	0.60
NAGALAND	9.51	0.56
DCPP	8.45	0.49
DB POWER	7.52	0.44
MANIPUR	6.97	0.41
NHPC STATIONS	6.73	0.39
JINDAL POWER	6.68	0.39
GMR KAMALANGA	6.68	0.39
MAITHON POWER LTD	5.89	0.34

NSPCL	5.26	0.31
COASTGEN	5.07	0.30
DGEN MEGA POWER	4.12	0.24
DADRA & NAGAR HAVELI	4.09	0.24
KARCHAM WANGTOO	4.04	0.24
THERMAL POWERTECH	4.03	0.24
NJPC	3.75	0.22
MEGHALAYA	3.55	0.21
SIKKIM	3.48	0.20
RGPPL(DABHOL)	3.36	0.20
KSK MAHANADI	2.66	0.16
JORETHANG	2.64	0.15
ADHUNIK POWER LTD	2.64	0.15
NEEPCO STATIONS	2.34	0.14
LANKO_AMK	2.29	0.13
PONDICHERRY	2.10	0.12
SHREE CEMENT	2.06	0.12
MEENAKSHI	1.70	0.10
LANKO KONDAPALLI	1.43	0.08
EMCO	1.29	0.08
ESSAR POWER	1.18	0.07
SIMHAPURI	1.16	0.07
JAYPEE NIGRIE	0.93	0.05
ACBIL	0.92	0.05
RANGIT HEP	0.68	0.04
DHARIWAL POWER	0.63	0.04
LOKTAK	0.59	0.03
URI-2	0.54	0.03
MB POWER	0.44	0.03
AD HYDRO	0.39	0.02
CHUZACHEN HEP	0.38	0.02
SPECTRUM	0.26	0.02
TEESTA HEP	0.23	0.01
MALANA	0.21	0.01
DAGACHU	0.18	0.01
LANCO BUDHIL	0.09	0.01
ADANI HVDC	0.07	0.00
TOTAL	1712.65	100.00
Volume Imported by top 5 Regional Entities	1270.24	74.17

**Table-15: TOTAL VOLUME OF NET SHORT-TERM TRANSACTIONS OF ELECTRICITY
(REGIONAL ENTITY-WISE), MARCH 2016**

Sr.No.	Name of the State/UT/Other Regional Entity	Total volume of net short-term transactions of electricity*
1	TELANGANA	655.70
2	BIHAR	451.81
3	CHHATTISGARH	417.59
4	MAHARASHTRA	370.20
5	ESSAR STEEL	343.95
6	KERALA	342.33
7	UTTARAKHAND	313.99
8	J & K	276.81
9	RAJASTHAN	261.92
10	WEST BENGAL	248.49
11	KARNATAKA	236.34
12	HIMACHAL PRADESH	160.48
13	JHARKHAND	119.43
14	ASSAM	111.56
15	GUJARAT	98.92
16	ANDHRA PRADESH	72.88
17	PUNJAB	71.22
18	NTPC STATIONS-ER	68.65
19	UTTAR PRADESH	62.80
20	DAMAN AND DIU	51.06
21	MEGHALAYA	49.19
22	GOA	38.09
23	TAMIL NADU	33.28
24	ARUNACHAL PRADESH	29.44
25	NAGALAND	19.86
26	MANIPUR	18.26
27	NTPC STATIONS-SR	13.53
28	ODISHA	13.16
29	MIZORAM	8.79
30	DADRA & NAGAR HAVELI	3.10
31	DGEN MEGA POWER	2.89
32	ESSAR POWER	1.18
33	CGPL	0.60
34	ADANI HVDC	0.07
35	VANDANA VIDYUT	-0.03
36	LOKTAK	-0.31
37	CHANDIGARH	-0.45
38	EMCO	-0.61
39	MALANA	-0.63
40	LANCO BUDHIL	-0.63
41	NTPC STATIONS-NR	-0.67
42	RANGIT HEP	-1.06
43	KSK MAHANADI	-1.22
44	LANCO_AMK	-1.50
45	URI-2	-2.18
46	NSPCL	-2.41

48	DAGACHU	-3.58
49	TEESTA HEP	-4.66
50	PONDICHERRY	-4.84
51	NEEPCO STATIONS	-5.23
52	DHARIWAL POWER	-5.65
53	RGPPL(DABHOL)	-5.84
54	MB POWER	-6.98
55	JAYPEE NIGRIE	-8.46
56	SIKKIM	-10.43
57	JORETHANG	-11.04
58	CHUZACHEN HEP	-12.22
59	AD HYDRO	-13.70
60	COASTGEN	-24.33
61	NJPC	-25.44
62	SPECTRUM	-28.19
63	LANKO KONDAPALLI	-34.27
64	JINDAL STAGE-II	-34.41
65	BALCO	-39.15
66	TRIPURA	-42.42
67	ACBIL	-51.07
68	HARYANA	-57.97
69	KARCHAM WANGTOO	-60.41
70	NTPC STATIONS-WR	-65.12
71	DVC	-65.32
72	DCPP	-75.43
73	NHPC STATIONS	-89.67
74	MEENAKSHI	-141.64
75	ADHUNIK POWER LTD	-149.62
76	DB POWER	-170.80
77	GMR CHHATTISGARH	-175.78
78	SHREE CEMENT	-211.46
79	MP	-268.89
80	SIMHAPURI	-293.05
81	STERLITE	-324.64
82	JINDAL POWER	-343.95
83	KORBA WEST POWER	-344.75
84	GMR KAMALANGA	-344.99
85	DELHI	-350.99
86	THERMAL POWERTECH	-468.67
87	JITPL	-604.16

* 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 2016			
	Details of Congestion	IEX	PXIL
A	Unconstrained Cleared Volume* (MUs)	3353.57	1.97
B	Actual Cleared Volume and hence scheduled (MUs)	3078.02	1.85
C	Volume of electricity that could not be cleared and hence not scheduled because of congestion (MUs) (A-B)	275.55	0.12
D	Volume of electricity that could not be cleared as % to Unconstrained Cleared Volume	8.22%	6.10%
E	Percentage of the time congestion occurred during the month (Number of hours congestion occurred/Total number of hours in the month)	79.37%	14.05%
F	Congestion occurrence (%) time block wise		
	0.00 - 6.00 hours	19.69%	22.01%
	6.00 - 12.00 hours	27.86%	21.29%
	12.00 - 18.00 hours	26.88%	24.16%
	18.00 - 24.00 hours	25.57%	32.54%
* This power would have been scheduled had there been no congestion.			
Source: IEX & PXIL & NLDC			

Table-17: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY IN INDIA (DAY-WISE) (MUs), MARCH 2016						
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-16	73.42	52.99	82.54	0.10	51.34	3135.01
2-Mar-16	75.44	57.66	89.48	0.09	49.11	3148.00
3-Mar-16	72.79	59.53	105.59	0.09	50.16	3152.00
4-Mar-16	72.76	58.74	98.36	0.09	52.35	3162.00
5-Mar-16	75.31	51.59	101.30	0.09	54.53	3068.00
6-Mar-16	73.32	42.25	107.23	0.09	55.21	2915.00
7-Mar-16	72.83	44.81	103.81	0.07	48.58	3020.00
8-Mar-16	75.62	47.99	91.08	0.06	53.53	3076.00
9-Mar-16	75.22	48.66	101.21	0.10	47.92	3181.00
10-Mar-16	75.92	48.08	100.48	0.06	48.72	3198.00
11-Mar-16	75.74	54.75	90.48	0.04	59.36	3145.00
12-Mar-16	79.27	49.70	90.14	0.04	60.78	3028.00
13-Mar-16	70.67	49.49	100.92	0.04	55.20	2884.00
14-Mar-16	72.98	54.48	111.50	0.10	50.59	2986.00
15-Mar-16	75.87	60.18	109.86	0.10	48.99	3057.52
16-Mar-16	64.88	64.10	103.17	0.10	50.58	3084.00
17-Mar-16	65.60	63.44	104.04	0.09	47.79	3118.00
18-Mar-16	61.96	65.14	89.54	0.04	52.34	3139.00
19-Mar-16	68.45	61.46	91.78	0.03	52.82	3129.00
20-Mar-16	64.73	53.64	96.57	0.03	53.55	3040.00
21-Mar-16	66.49	60.73	108.16	0.04	50.25	3152.00
22-Mar-16	68.17	59.87	111.91	0.04	51.69	3159.00
23-Mar-16	69.54	53.73	104.83	0.04	55.60	3130.00
24-Mar-16	64.53	49.59	72.91	0.04	52.10	NA
25-Mar-16	64.45	57.16	82.88	0.05	52.56	3019.00
26-Mar-16	67.50	63.96	87.79	0.04	49.90	3146.00
27-Mar-16	60.63	52.55	90.42	0.04	55.74	3064.00
28-Mar-16	68.08	64.75	101.64	0.04	62.32	3120.00
29-Mar-16	68.19	65.05	113.66	0.04	57.08	3210.00
30-Mar-16	71.53	64.82	113.18	0.04	54.68	3218.00
31-Mar-16	68.40	65.39	103.06	0.04	53.33	3236.00
Total	2180.29	1746.27	3059.48	1.85	1638.69	96075.12***

Source: NLDC

* Gross Electricity Generation excluding electricity generation from renewables and captive power plants.

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

***Provisional based actual-cum-assessment taken from CEA's monthly reports

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 2016

Market Segment	Day ahead market of IEX			Day ahead market of PXIL			Under Draw/Over Draw 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-16	1.80	12.98	2.38	2.50	2.50	2.50	0.00	3.45	1.76
2-Mar-16	2.05	3.20	2.49	2.25	2.25	2.25	0.00	5.11	1.86
3-Mar-16	2.10	3.68	2.44	2.50	2.50	2.50	0.00	5.32	1.98
4-Mar-16	1.89	3.80	2.40	2.35	2.35	2.35	0.00	5.11	1.98
5-Mar-16	1.91	2.88	2.24	2.30	2.30	2.30	0.00	3.45	1.44
6-Mar-16	1.01	3.31	2.25	2.20	2.20	2.20	0.00	3.24	1.55
7-Mar-16	1.01	4.00	2.39	2.30	2.30	2.30	0.00	4.91	1.71
8-Mar-16	1.01	5.00	2.41	2.25	2.25	2.25	0.00	3.45	1.76
9-Mar-16	1.90	3.50	2.28	2.25	2.25	2.25	0.00	4.91	2.10
10-Mar-16	1.29	5.00	2.38	2.30	2.30	2.30	0.00	6.36	2.29
11-Mar-16	1.01	3.95	2.38	2.30	2.30	2.30	0.00	5.95	2.46
12-Mar-16	1.80	5.50	2.59	2.30	2.30	2.30	0.00	3.45	1.49
13-Mar-16	0.80	5.51	2.42	2.25	2.25	2.25	0.00	3.03	1.34
14-Mar-16	1.73	5.01	2.52	2.40	2.40	2.40	0.00	5.95	1.64
15-Mar-16	0.80	5.25	2.42	2.45	2.45	2.45	0.00	3.45	1.83
16-Mar-16	2.57	5.24	3.11	2.45	2.45	2.45	0.00	5.11	1.82
17-Mar-16	2.24	5.96	2.61	3.00	3.00	3.00	0.00	5.32	2.11
18-Mar-16	1.00	6.01	2.49	2.60	2.60	2.60	0.00	5.95	1.74
19-Mar-16	1.89	6.51	2.67	2.60	2.60	2.60	0.00	3.24	1.49
20-Mar-16	1.90	6.50	2.66	2.45	2.45	2.45	0.00	3.24	1.30
21-Mar-16	2.20	6.31	2.83	2.45	2.45	2.45	0.00	6.16	1.78
22-Mar-16	2.50	5.90	3.16	2.80	2.80	2.80	0.00	3.45	1.98
23-Mar-16	1.80	6.51	2.87	3.20	3.20	3.20	0.00	3.24	1.60
24-Mar-16	0.70	6.51	2.36	2.85	2.85	2.85	0.00	3.03	1.11
25-Mar-16	0.70	5.96	2.46	2.40	2.40	2.40	0.00	5.11	1.69
26-Mar-16	1.50	6.51	2.41	2.40	2.40	2.40	0.00	5.74	2.09
27-Mar-16	1.30	5.66	2.49	2.40	2.40	2.40	0.00	6.36	2.15
28-Mar-16	1.90	5.96	2.72	2.45	2.45	2.45	0.00	3.45	1.77
29-Mar-16	2.38	6.00	2.78	2.80	2.80	2.80	0.00	3.24	1.12
30-Mar-16	2.37	4.90	2.81	2.80	2.80	2.80	0.00	4.91	1.55
31-Mar-16	1.45	6.01	2.72	2.80	2.80	2.80	0.00	3.03	0.90
	0.70#	12.98#	2.56	2.20#	3.20#	2.46	0#	6.36#	1.72**

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 2016

Name of the State/UT/Other Regional Entity	Through Bilateral			Through Power Exchange			Through DSM with Regional Grid			Total Net***
	Sale	Purchase	Net**	Sale	Purchase	Net**	Import (Over Draw)	Export (Under Draw)	Net**	
PUNJAB	90.09	3.78	-86.30	22.22	163.34	141.12	64.31	47.90	16.41	71.22
HARYANA	442.03	282.44	-159.59	79.21	210.86	131.65	42.16	72.19	-30.03	-57.97
RAJASTHAN	148.06	25.14	-122.92	61.27	404.21	342.94	87.09	45.19	41.90	261.92
DELHI	501.60	1.38	-500.22	40.69	150.32	109.63	48.25	8.64	39.60	-350.99
UTTAR PRADESH	233.13	195.23	-37.90	0.00	80.76	80.76	99.38	79.44	19.94	62.80
UTTARAKHAND	0.00	153.00	153.00	4.17	124.14	119.97	55.71	14.70	41.02	313.99
HIMACHAL PRADESH	30.72	235.59	204.87	108.10	50.72	-57.39	33.23	20.23	13.00	160.48
J & K	25.42	320.74	295.32	20.68	2.17	-18.51	0.00	0.00	0.00	276.81
CHANDIGARH	0.00	0.00	0.00	8.89	0.16	-8.73	11.53	3.26	8.28	-0.45
MP	150.58	18.38	-132.19	94.29	15.81	-78.47	18.24	76.47	-58.22	-268.89
MAHARASHTRA	3.57	359.78	356.20	45.59	148.05	102.46	41.13	129.60	-88.46	370.20
GUJARAT	287.96	329.69	41.73	228.85	308.41	79.55	45.24	67.61	-22.37	98.92
CHHATTISGARH	12.63	504.27	491.64	59.58	7.97	-51.61	26.34	48.77	-22.44	417.59
DAMAN AND DIU	0.00	0.82	0.82	0.00	40.28	40.28	11.90	1.93	9.96	51.06
DADRA & NAGAR HAVELI	0.00	6.06	6.06	0.00	0.00	0.00	4.09	7.05	-2.96	3.10
ANDHRA PRADESH	83.51	68.60	-14.91	10.67	127.93	117.26	19.65	49.12	-29.46	72.88
KARNATAKA	0.00	31.00	31.00	0.00	130.89	130.89	89.90	15.45	74.45	236.34
KERALA	0.00	206.82	206.82	3.60	67.64	64.04	73.47	2.00	71.48	342.33
TAMIL NADU	0.00	68.58	68.58	0.00	14.12	14.12	17.66	67.07	-49.42	33.28
PONDICHERRY	0.00	0.00	0.00	0.00	0.00	0.00	2.10	6.94	-4.84	-4.84
GOA	0.00	6.60	6.60	2.76	16.32	13.56	24.06	6.14	17.93	38.09
TELANGANA	13.08	571.73	558.65	25.88	130.98	105.10	27.36	35.41	-8.05	655.70
WEST BENGAL	5.36	62.81	57.45	20.15	173.11	152.96	56.32	18.23	38.08	248.49
ODISHA	35.60	21.85	-13.75	43.73	27.27	-16.46	55.93	12.56	43.37	13.16
BIHAR	0.00	169.60	169.60	0.00	251.41	251.41	62.90	32.11	30.79	451.81
JHARKHAND	0.00	90.22	90.22	0.00	0.00	0.00	46.29	17.08	29.21	119.43
SIKKIM	0.00	0.00	0.00	6.77	0.00	-6.77	3.48	7.14	-3.66	-10.43
DVC	24.46	0.00	-24.46	43.29	0.00	-43.29	34.08	31.65	2.44	-65.32
ARUNACHAL PRADESH	0.00	0.00	0.00	0.00	11.31	11.31	18.59	0.46	18.13	29.44
ASSAM	0.00	37.00	37.00	17.81	45.21	27.39	52.98	5.81	47.16	111.56
MANIPUR	3.88	26.65	22.78	11.07	2.24	-8.83	6.97	2.66	4.31	18.26
MEGHALAYA	22.13	73.88	51.75	6.38	5.71	-0.67	3.55	5.44	-1.89	49.19
MIZORAM	0.00	0.00	0.00	1.89	0.76	-1.13	10.35	0.43	9.92	8.79
NAGALAND	0.00	0.00	0.00	0.00	10.80	10.80	9.51	0.45	9.06	19.86
TRIPURA	0.53	0.00	-0.53	55.60	2.68	-52.92	14.47	3.45	11.02	-42.42

NTPC STATIONS-NR	0.00	0.00	0.00	0.00	0.00	0.00	45.18	45.85	-0.67	-0.67
NHPC STATIONS	0.00	0.00	0.00	31.03	0.00	-31.03	6.73	65.38	-58.65	-89.67
NJPC	0.00	0.00	0.00	23.43	0.00	-23.43	3.75	5.76	-2.01	-25.44
AD HYDRO	0.00	0.00	0.00	13.15	0.00	-13.15	0.39	0.93	-0.54	-13.70
KARCHAM WANGTOO	0.00	0.00	0.00	63.29	0.00	-63.29	4.04	1.17	2.88	-60.41
SHREE CEMENT	141.09	0.00	-141.09	71.85	0.00	-71.85	2.06	0.57	1.48	-211.46
LANCO BUDHIL	0.00	0.00	0.00	0.55	0.00	-0.55	0.09	0.18	-0.08	-0.63
ADANI HVDC	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.07	0.07
MALANA	0.00	0.00	0.00	0.80	0.00	-0.80	0.21	0.05	0.17	-0.63
URI-2	0.00	0.00	0.00	0.00	0.00	0.00	0.54	2.73	-2.18	-2.18
NTPC STATIONS-WR	0.00	0.00	0.00	0.00	0.00	0.00	57.92	123.04	-65.12	-65.12
JINDAL POWER	146.81	0.00	-146.81	195.51	0.00	-195.51	6.68	8.31	-1.63	-343.95
LANKO_AMK	0.00	0.00	0.00	0.00	0.00	0.00	2.29	3.79	-1.50	-1.50
NSPCL	5.04	0.00	-5.04	0.00	0.00	0.00	5.26	2.62	2.64	-2.41
ACBIL	12.28	0.00	-12.28	38.04	0.00	-38.04	0.92	1.67	-0.75	-51.07
BALCO	0.00	0.00	0.00	52.97	0.00	-52.97	20.88	7.06	13.82	-39.15
RGPPL(DABHOL)	0.00	0.00	0.00	0.00	0.00	0.00	3.36	9.20	-5.84	-5.84
CGPL	0.00	0.00	0.00	0.00	0.00	0.00	11.30	10.70	0.60	0.60
DCPP	0.05	0.00	-0.05	79.14	0.00	-79.14	8.45	4.69	3.76	-75.43
EMCO	0.00	0.00	0.00	0.00	0.00	0.00	1.29	1.89	-0.61	-0.61
VANDANA VIDYUT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	-0.03	-0.03
ESSAR STEEL	0.00	1.89	1.89	0.00	335.78	335.78	26.60	20.32	6.29	343.95
KSK MAHANADI	0.00	0.00	0.00	0.00	0.00	0.00	2.66	3.88	-1.22	-1.22
ESSAR POWER	0.00	0.00	0.00	0.00	0.00	0.00	1.18	0.00	1.18	1.18
JINDAL STAGE-II	12.24	0.00	-12.24	22.17	0.00	-22.17	0.00	0.00	0.00	-34.41
DB POWER	19.73	0.00	-19.73	154.81	0.00	-154.81	7.52	3.78	3.74	-170.80
DHARIWAL POWER	0.00	0.00	0.00	5.80	0.00	-5.80	0.63	0.49	0.14	-5.65
JAYPEE NIGRIE	0.00	0.00	0.00	3.86	0.00	-3.86	0.93	5.53	-4.60	-8.46
DGEN MEGA POWER	0.00	0.00	0.00	0.00	0.00	0.00	4.12	1.24	2.89	2.89
GMR CHHATTISGARH	64.30	0.00	-64.30	119.15	0.00	-119.15	10.89	3.21	7.68	-175.78
KORBA WEST POWER	175.58	0.00	-175.58	203.91	0.00	-203.91	38.13	3.39	34.73	-344.75
MB POWER	0.00	0.00	0.00	0.00	0.00	0.00	0.44	7.42	-6.98	-6.98
SPECTRUM	0.00	0.00	0.00	28.46	0.00	-28.46	0.26	0.00	0.26	-28.19
NTPC STATIONS-SR	0.00	0.00	0.00	0.00	0.00	0.00	27.22	13.69	13.53	13.53
LANKO KONDAPALLI	35.70	0.00	-35.70	0.00	0.00	0.00	1.43	0.00	1.43	-34.27
SIMHAPURI	289.24	0.00	-289.24	2.88	0.00	-2.88	1.16	2.09	-0.93	-293.05
MEENAKSHI	101.70	0.00	-101.70	40.94	0.00	-40.94	1.70	0.69	1.01	-141.64
COASTGEN	16.82	0.00	-16.82	10.96	0.00	-10.96	5.07	1.62	3.45	-24.33
THERMAL POWERTECH	372.66	0.00	-372.66	93.34	0.00	-93.34	4.03	6.70	-2.66	-468.67
NTPC STATIONS-ER	0.00	0.00	0.00	0.00	0.00	0.00	86.52	17.86	68.65	68.65

STERLITE	94.47	0.00	-94.47	281.47	0.00	-	54.13	2.84	51.30	-324.64
MAITHON POWER LTD	0.00	0.00	0.00	3.40	0.00	-3.40	5.89	5.14	0.75	-2.66
ADHUNIK POWER LTD	90.25	0.00	-90.25	55.61	0.00	-55.61	2.64	6.40	-3.76	-149.62
CHUZACHEN HEP	0.00	0.00	0.00	10.43	0.00	-10.43	0.38	2.17	-1.79	-12.22
RANGIT HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.68	1.74	-1.06	-1.06
GMR KAMALANGA	346.46	0.00	-346.46	3.45	0.00	-3.45	6.68	1.77	4.91	-344.99
JITPL	200.53	0.00	-200.53	415.03	0.00	-	16.12	4.72	11.40	-604.16
TEESTA HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.23	4.89	-4.66	-4.66
DAGACHU	3.57	0.00	-3.57	0.00	0.00	0.00	0.18	0.18	-0.01	-3.58
JORETHANG	0.00	0.00	0.00	12.45	0.00	-12.45	2.64	1.24	1.41	-11.04
NEEPCO STATIONS	0.00	0.00	0.00	0.00	0.00	0.00	2.34	7.57	-5.23	-5.23
LOKTAK	0.00	0.00	0.00	0.00	0.00	0.00	0.59	0.90	-0.31	-0.31
TOTAL	4242.83	3873.52	-369.31	3061.05	3061.33	0.29	1712.65	1369.65	343.00	-26.02
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, 2016 Percentage

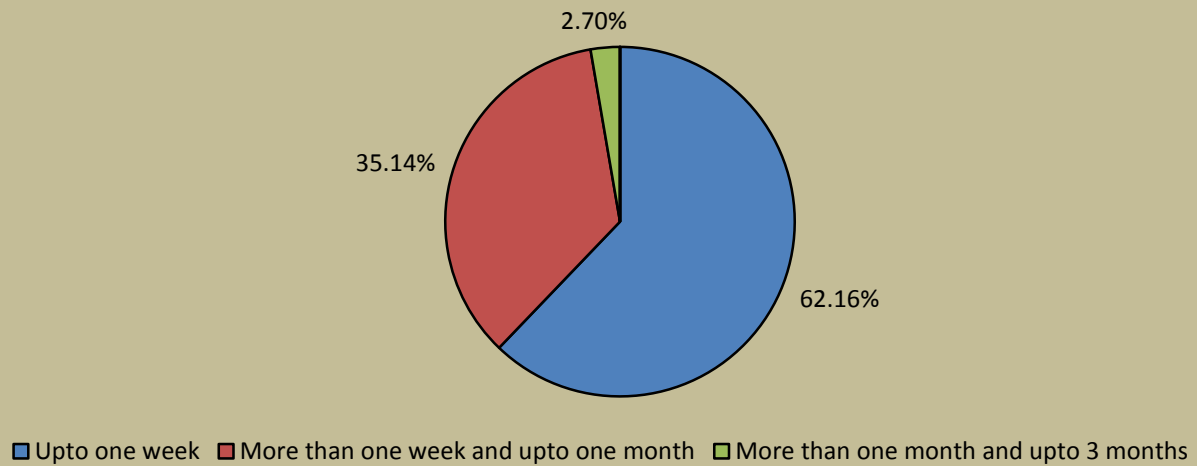


Figure-8: Forward Curve based on Prices of Bilateral Contracts

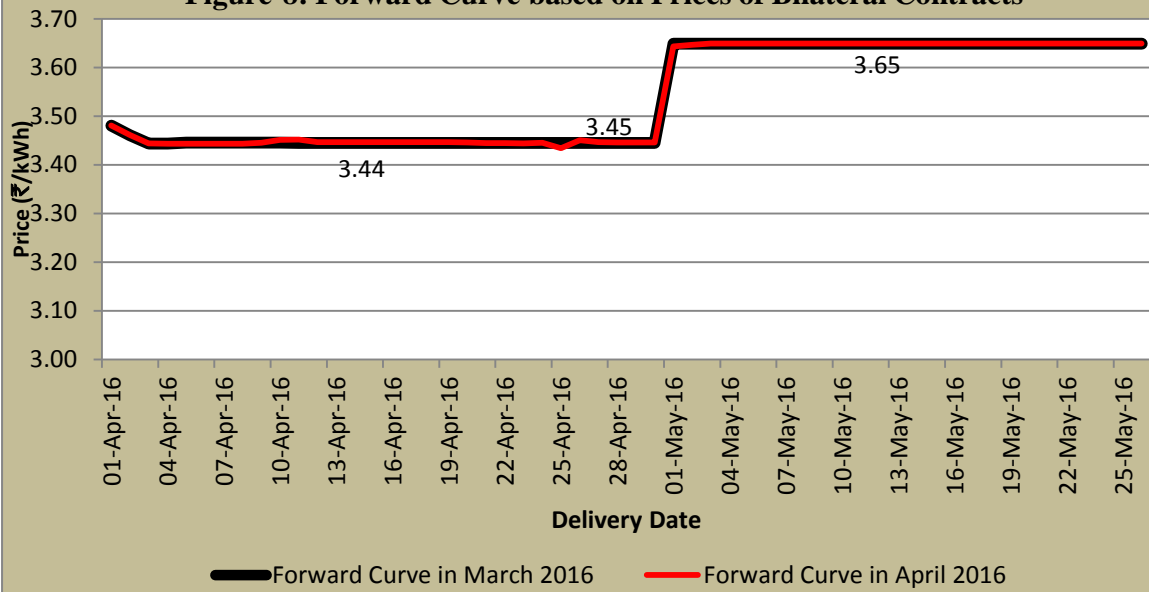


Table-20 : VOLUME AND PRICE OF RENEWABLE ENERGY CERTIFICATES (RECs) TRANSACTIONED THROUGH POWER EXCHANGES, MARCH 2016					
Sr.No.	Details of REC Transactions	IEX		PXIL	
		Solar	Non-Solar	Solar	Non Solar
A	Volume of Buy Bid	108797	600940	43269	513379
B	Volume of Sell Bid	2143539	7845782	1288378	5751650
C	Ratio of Buy Bid to Sell Bid Volume	0.051	0.077	0.034	0.089
D	Market Clearing Volume (MWh)	108797	600940	43269	513379
E	Market Clearing Price (₹/MWh)	3500	1500	3500	1500

Source: IEX and PXIL

Note 1: 1 REC = 1 MWh

Note 2:

<i>Forbearance and Floor Price w.e.f 1st March 2015</i>		
Type of REC	<i>Floor Price (₹MWh)</i>	<i>Forbearance Price (₹MWh)</i>
<i>Solar</i>	<i>3500.00</i>	<i>5800.00</i>
<i>Non-Solar</i>	<i>1500.00</i>	<i>3300.00</i>