

# Monthly Report on Short-term Transactions of Electricity in India

January, 2017



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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	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
ILF&S	Infrastructure Leasing & Financial Services Limited
J&K	Jammu & Kashmir
JAYPEE NIGRIE	JaypeeNigrie 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	JaypeeKarcham Hydro Corporation Limited
KORBA WEST POWER	Korba West Power Company Limited
KSK MAHANADI	KSK Mahanadi Power Ltd
LANKO 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	NathpaJhakri Hydroelectric Power Station
NLDC	National Load Despatch Centre
NSPCL	NTPC - SAIL Power Company Private Limited
NVVN	NTPC Vidyut Vyapar Nigam Limited
ONGC Platana	ONGC Tripura Power Company
OTC	Over The Counter
PX	Power Exchange
PXIL	Power Exchange India Limited
RANGIT HEP	RangitHydro electric power project
REC	Renewable Energy Certificate
RGPPL	Ratnagiri Gas and Power Private Limited
RLDC	Regional Load Despatch Centre
RTC	Round The Clock
Sasan UMPP	Sasan Ultra Mega Power Project
SHREE CEMENT	Shree Cement Limited
SIMHAPURI	Simhapuri Energy Private 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 **January, 2017** are as under:

### I: Volume of Short-term Transactions of Electricity

During January 2017, total electricity generation excluding generation from renewable and captive power plants in India was 95112.72MUs (Table-1).

Of the total electricity generation, 10508.92MUs (11.05%) was transacted through short-term, comprising of 4459.48MUs (4.69%) through bilateral (through traders and term-ahead contracts on power exchanges and directly between distribution companies), followed by 3235.87MUs (3.40%) through day ahead collective transactions on power exchanges (IEX and PXIL) and 2813.57MUs (2.96%) through DSM (Table-1 & Figure-2).

Of the total short-term transactions, bilateral constitutes 42.44%(23.83% through traders and term-ahead contracts on power exchanges and 18.60% directly between distribution companies) followed by 30.79% through day ahead collective transactions on power exchanges and 26.77% 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 35 trading licensees as on January, 2017. In January, 2017, 21 trading licensees were engaged in short term trading. Top 5 trading licensees had a share of 72.66% in the total volume traded by all the licensees. These are PTC India Ltd., Mittal Processors (P) Ltd., NTPC Vidyut Vyapar Nigam Ltd., Manikaran Power 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 0.1564 for the month of January, 2017, which indicates moderate concentration of market power (Table-2).

The volume of electricity transacted through IEX and PXIL in the day ahead market was 3230.61MUs and 5.26MUs respectively. The volume of total buy bids and sell bids was 3883.64MUs and 6954.62MUs respectively in IEX while the same was 15.81MUs and 70.69MUs 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 14.45MUs and 2.44MUs 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 ₹2.63/kWh, ₹4.70/kWh and ₹3.50/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 ₹3.80/kWh, ₹4.19/kWh, and ₹2.81/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 ₹0.80/kWh, ₹9.01/kWh and ₹2.57/kWh respectively in IEX and ₹1.29/kWh, ₹3.78/kWh and ₹2.65/kWh respectively in PXIL (Table-5).

The price of electricity transacted through IEX and PXIL in the term-ahead market was ₹3.21/kWh and ₹2.95/kWh respectively (Table-6 and Table-7).

**(iii) Price of electricity transacted through DSM:** The average deviation settlement price was ₹1.66/kWh. The minimum and maximum deviation settlement prices were ₹0.00/kWh and ₹5.74/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 Entity<sup>1</sup>-Wise)**

Of the total bilateral transactions, top 5 regional entities sold 48.10% of the volume, and these were Punjab, Haryana, Infrastructure Leasing & Financial Services Limited, Uttar Pradesh and Essar Power Ltd. Top 5 regional entities purchased 50.61% of the volume, and these were Tamil Nadu, Jammu & Kashmir, Himachal Pradesh, Maharashtra and Madhya Pradesh (Table-9 & 10).

Of the total power exchange transactions, top 5 regional entities sold 31.78% of the volume, and these were Diligent Power Pvt. Ltd., Jindal Power Ltd., Chhattisgarh, Korba West Power Company Ltd. and Madhya Pradesh. Top 5 regional entities purchased 47.30% of the volume, and these were Gujarat, Maharashtra, Rajasthan, Karnataka and Haryana (Table-11 & 12).

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<sup>1</sup> 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 35.04% of the volume, and these were Tamil Nadu, NTPC Stations (WR), Gujarat, Haryana and Maharashtra (Table-13). Top 5 regional entities overdrew 28.94% of the volume, and these were Rajasthan, Uttar Pradesh, NTPC Stations (WR), Karnataka and NTPC Stations (NR) (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, Infrastructure Leasing & Financial Services Limited, Diligent Power Pvt. Ltd., Haryana and Jaypee Nigrie Super Thermal Power Project. Top 5 electricity purchasing regional entities were Maharashtra, Jammu & Kashmir, Rajasthan, Telangana and Himachal Pradesh.

#### **IV: Congestion<sup>2</sup> 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”<sup>3</sup>.

In the month of January, 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

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

<sup>3</sup> “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 2.06% and 19.57% of the unconstrained cleared volume respectively. In terms of time, congestion occurred was 67.14% in IEX and 8.40% in PXIL (Table-16).

## **V: Bilateral Contracts executed by Traders**

In addition to the analysis on short-term transactions of electricity in January, 2017, this section covers an analysis of bilateral contracts executed in February, 2017.

**(i) Duration of bilateral contracts:** During February, 2017, a total of 70 bilateral contracts (excluding banking/swap contracts) have been executed by traders for the volume of 1243.95MUs. Figure-7 shows the percentage of contracts categorized according to the period of power supply. It can be observed from the figure that 70.0% of the bilateral contracts were executed for duration of up to one week, 22.9% of the contracts were executed for duration of more than a week and up to one month, 2.9% of the bilateral contracts were executed for duration for more than one month and upto 3 months, and 4.3% of the bilateral contracts were executed for duration for more than three months and upto 12 months.

During the month, 3 banking/swapping bilateral contracts were also executed for the volume of 97.79MUs.

**(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 01, February, 2017 to 29, May, 2017 based on the bilateral contracts<sup>4</sup> executed till February, 2017. Forward curves have been drawn for the contracts executed in January, 2017 and February, 2017 for the purpose of comparison. It is observed that forward contract prices are higher for the contracts executed in February, 2017 compared to the contract executed in January, 2017 during the entire period.

## **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 January, 2017 are shown in Table-20. The market clearing volume of solar RECs transacted on IEX and PXIL were 39572 and 8327 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 1248242 and 272051 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 about the variation in demand for both solar and non-solar RECs. For Solar RECs, the ratio of buy bids to sell bids was 0.012 and 0.007 for IEX and PXIL respectively. For non-solar RECs, the ratio of buy bids to sell bids was 0.136 and 0.057 for IEX and PXIL respectively.

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<sup>4</sup>Excluding Banking/Swapping contracts

## VII: Inferences:

- The percentage of short-term transactions of electricity to total electricity generation was 11.05%.
- Of the total short-term transactions of electricity, 42.44% was transacted through bilateral (through traders and term ahead contracts on power exchanges and directly by distribution companies), followed by 30.79% through power exchanges and 26.77% through DSM.
- Top 5 trading licensees had a share of 72.66% 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 0.1564, indicating moderate concentration of market power.
- The weighted average price of electricity transacted through trading licensees was ₹3.50/kWh. The weighted average prices of electricity transacted through IEX and PXIL were ₹2.57/kWh and ₹2.65/kWh respectively.
- The average price of electricity transacted through DSM was ₹1.66/kWh.
- Top 5 electricity selling regional entities were Punjab, Infrastructure Leasing & Financial Services Limited, Diligent Power Pvt. Ltd., Haryana and Jaypee Nigrie Super Thermal Power Project. Top 5 electricity purchasing regional entities were Maharashtra, Jammu & Kashmir, Rajasthan, Telangana and Himachal Pradesh.
- The volume of electricity that could not be cleared in IEX and PXIL due to congestion was 2.06% and 19.57% of the unconstrained cleared volume respectively. In terms of time, congestion occurred was 67.14% in IEX and 8.40% in PXIL.
- In February, 2017, 70.0% of the bilateral contracts were executed for duration of up to one week, 22.9% of the contracts were executed for duration of more than a week and up to one month, 2.9% of the bilateral contracts were executed for duration of more than one month and upto 3 months, and 4.3% of the bilateral contracts were executed for duration of more than three months and upto 12 months.

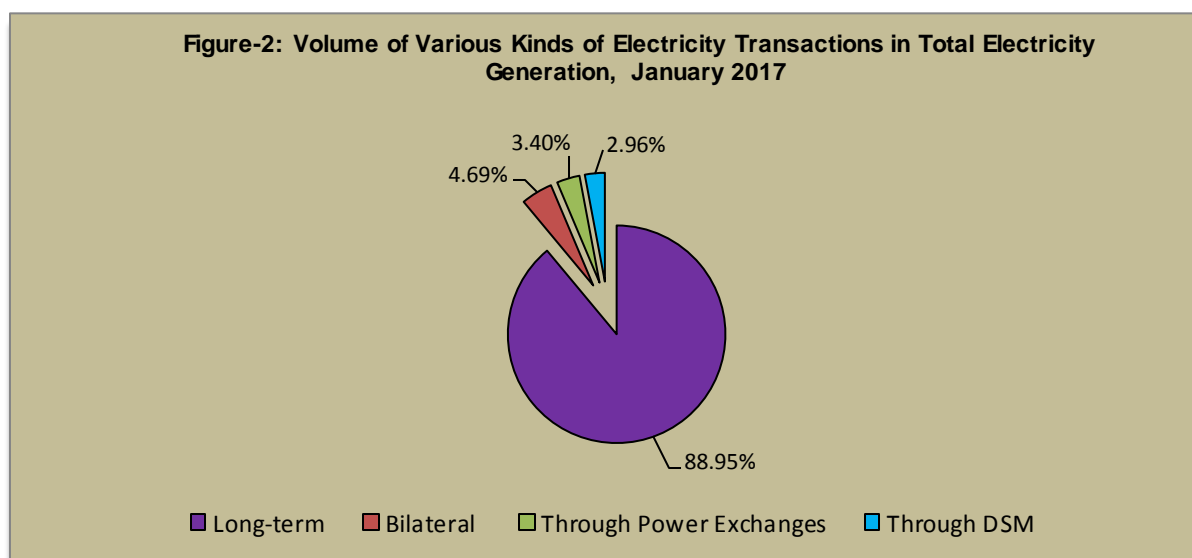
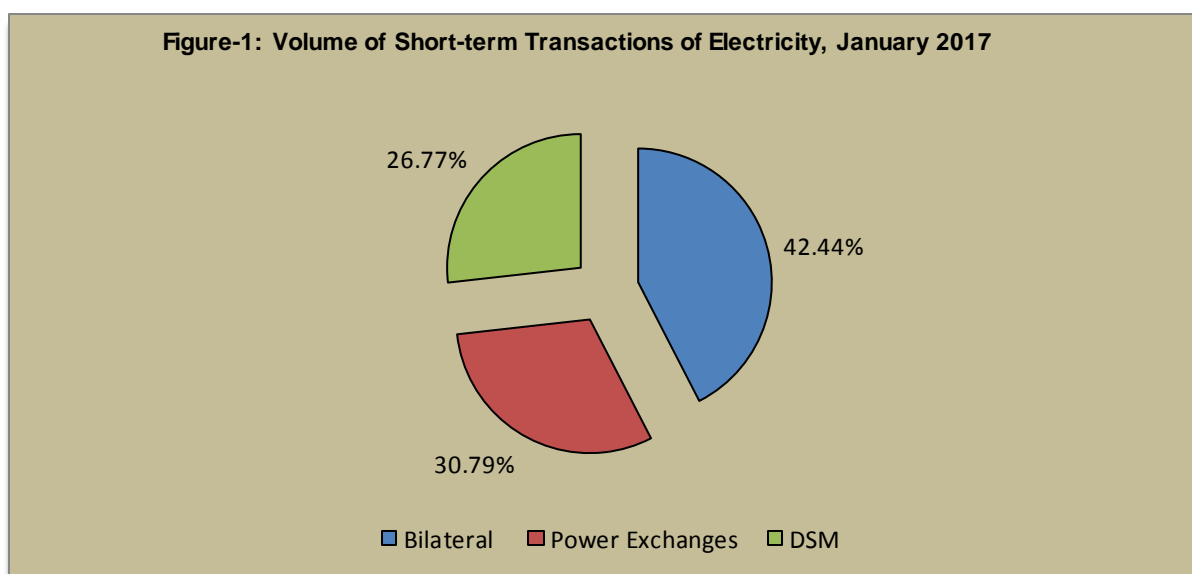
- The forward curve of electricity sale prices for the period from 01, February, 2017 to 29, May, 2017 based on the bilateral contracts<sup>5</sup> executed till February, 2017 shows that forward contract prices are higher for the contracts executed in February, 2017 compared to the contract executed in January, 2017 during the entire period.
- The market clearing volume of solar RECs transacted on IEX and PXIL were 39572 and 8327 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 1248242 and 272051 respectively and the market clearing price of these RECs was ₹1500/MWh on both the power exchanges.

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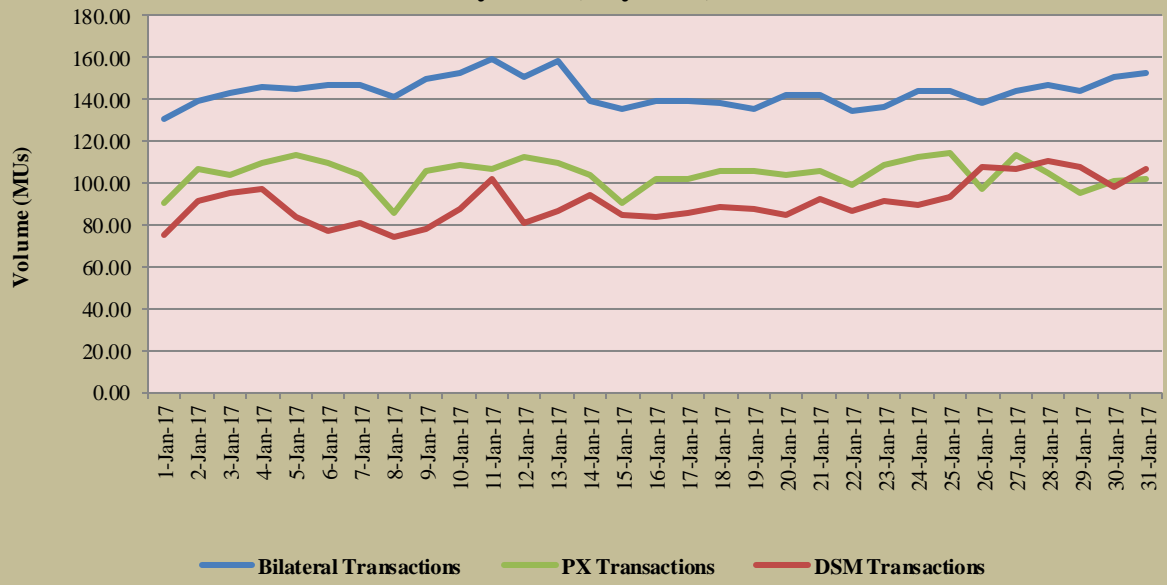
<sup>5</sup>*Excluding Banking/Swapping contracts*

Table-1: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (ALL INDIA), JANUARY 2017				
Sr.No	Short-term transactions	Volume (MUs)	% to Volume of short-term transactions	% to Total Generation
1	Bilateral	4459.48	42.44	4.69
	(i) Through Traders and PXs	2504.68	23.83	2.63
	(ii) Direct	1954.80	18.60	2.06
2	Through Power Exchanges	3235.87	30.79	3.40
	(i) IEX	3230.61	30.74	3.40
	(ii) PXIL	5.26	0.05	0.006
3	Through DSM	2813.57	26.77	2.96
	<b>Total</b>	<b>10508.92</b>	-	<b>11.05</b>
	<b>Total Generation</b>	<b>95112.72</b>	-	-

Source: NLDC



**Figure-3: Volume of Short-term Transactions of Electricity, January 2017(Day-wise)**



<b>Table-2: PERCENTAGE SHARE OF ELECTRICITY TRANSACTED BY TRADING LICENSEES, JANUARY 2017</b>			
<b>Sr. No</b>	<b>Name of the Trading Licensee</b>	<b>% Share in total Volume transacted by Trading Licensees</b>	<b>Herfindahl-Hirschman Index</b>
1	PTC India Ltd.	30.77	0.0947
2	Mittal Processors (P) Ltd.	18.01	0.0324
3	NTPC VidyutVyapar Nigam Ltd.	9.25	0.0086
4	Manikaran Power Ltd.	8.24	0.0068
5	GMR Energy Trading Ltd.	6.40	0.0041
6	Tata Power Trading Company (P) Ltd.	5.43	0.0029
7	Arunachal Pradesh Power Corporation (P) Ltd	5.14	0.0026
8	Adani Enterprises Ltd.	4.22	0.0018
9	Jaiprakash Associates Ltd.	2.99	0.0009
10	Knowledge Infrastructure Systems (P) Ltd	2.86	0.0008
11	JSW Power Trading Company Ltd	1.61	0.0003
12	National Energy Trading & Services Ltd.	1.52	0.0002
13	RPG Power Trading Company Ltd.	1.05	0.0001
14	Shree Cement Ltd.	0.50	0.0001
15	Instinct Infra & Power Ltd.	0.49	0.0000
16	My Home Power Private Ltd.	0.43	0.0000
17	Customized Energy Solutions India (P) Ltd.	0.43	0.0000
18	SN Power Markets Pvt. Ltd.	0.30	0.0000
19	Gita Power & Infrastructure Private Limited	0.16	0.0000
20	Essar Electric Power Development Corp. Ltd.	0.14	0.0000
21	Phillip Commodities India (P) Ltd.	0.07	0.0000
<b>TOTAL</b>		<b>100.00%</b>	<b>0.1564</b>
<b>Top 5 trading licensees</b>		<b>72.66%</b>	
<i>Note 1: Volume of electricity transacted by the trading licensees includes bilateral transactions (inter-state &amp; 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>			

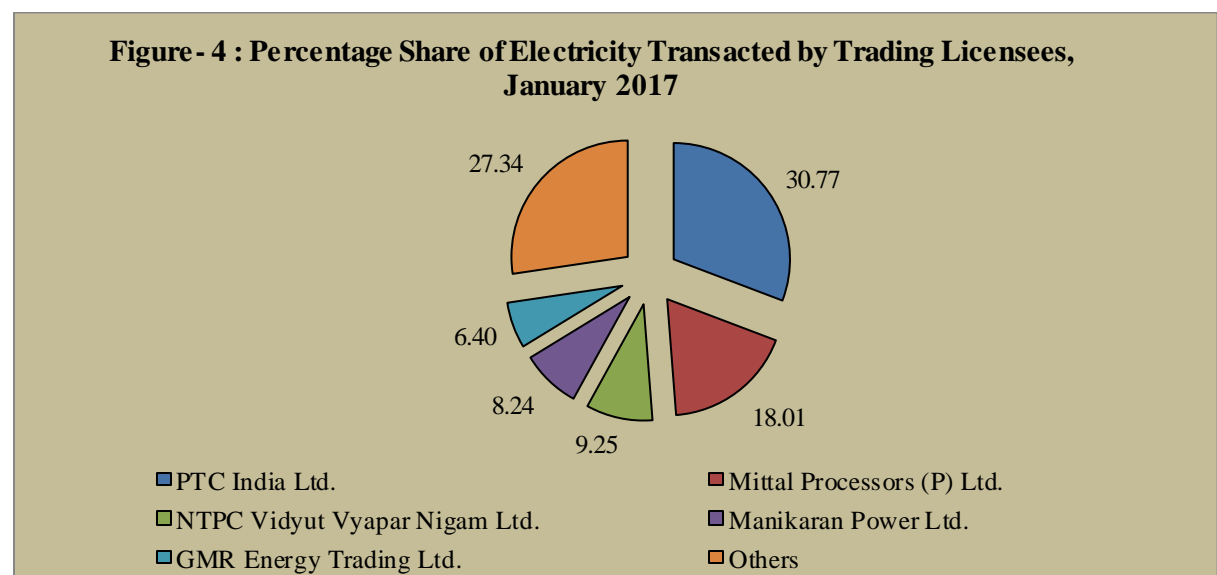




Table-3: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS, JANUARY 2017		
Sr.No	Item	Sale Price of Traders (₹/kWh)
1	Minimum	2.63
2	Maximum	4.70
3	Weighted Average	3.50

Source: Information submitted by trading licensees

Table-4: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS (TIME-WISE), JANUARY 2017		
Sr.No	Period of Trade	Sale Price of Traders (₹/kWh)
1	RTC	3.80
2	PEAK	4.19
3	OFF PEAK	2.81

Source: Information submitted by trading licensees

Table-5: PRICE OF ELECTRICITY TRANSACTED THROUGH POWER EXCHANGES, JANUARY 2017			
Sr.No	ACP	Price in IEX (₹/kWh)	Price in PXIL (₹/kWh)
1	Minimum	0.80	1.29
2	Maximum	9.01	3.78
3	Weighted Average	2.57	2.65

Source: Information submitted by IEX and PXIL

Table-6: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF IEX, JANUARY 2017			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	5.31	3.31
2	Day Ahead Contingency Contracts	9.14	3.15
3	Daily Contracts		
4	Weekly Contracts		
	<b>Total</b>	<b>14.45</b>	<b>3.21</b>

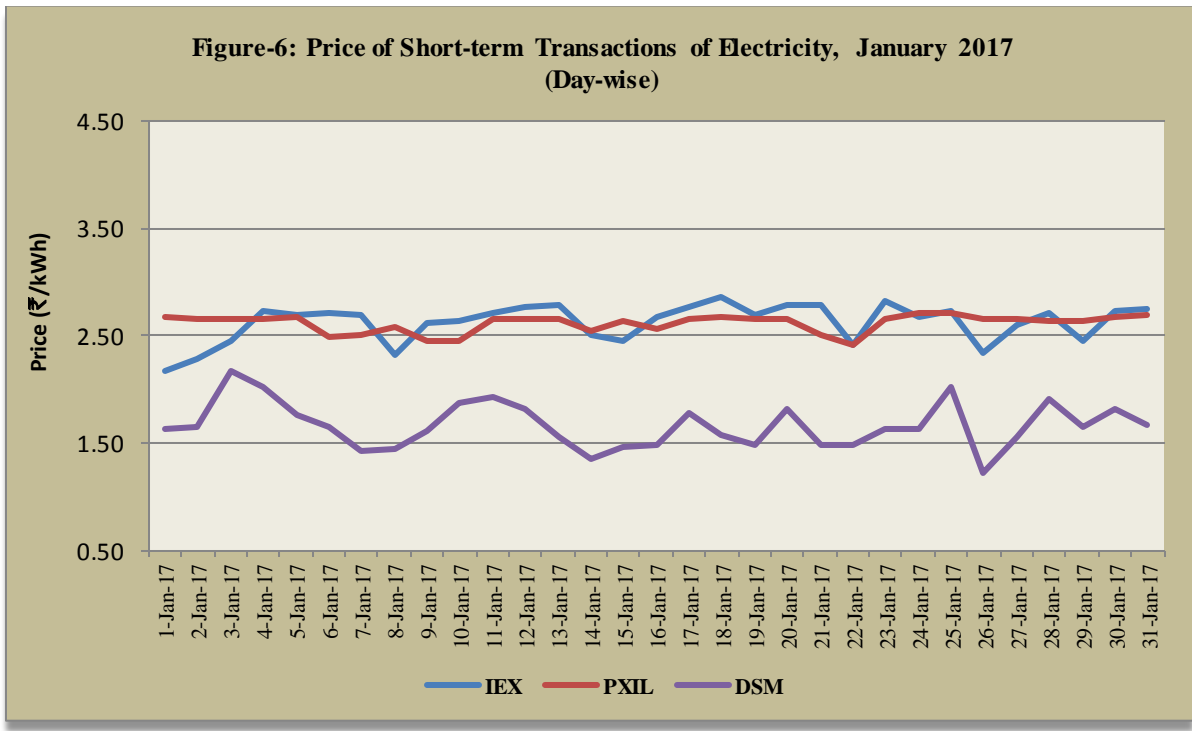
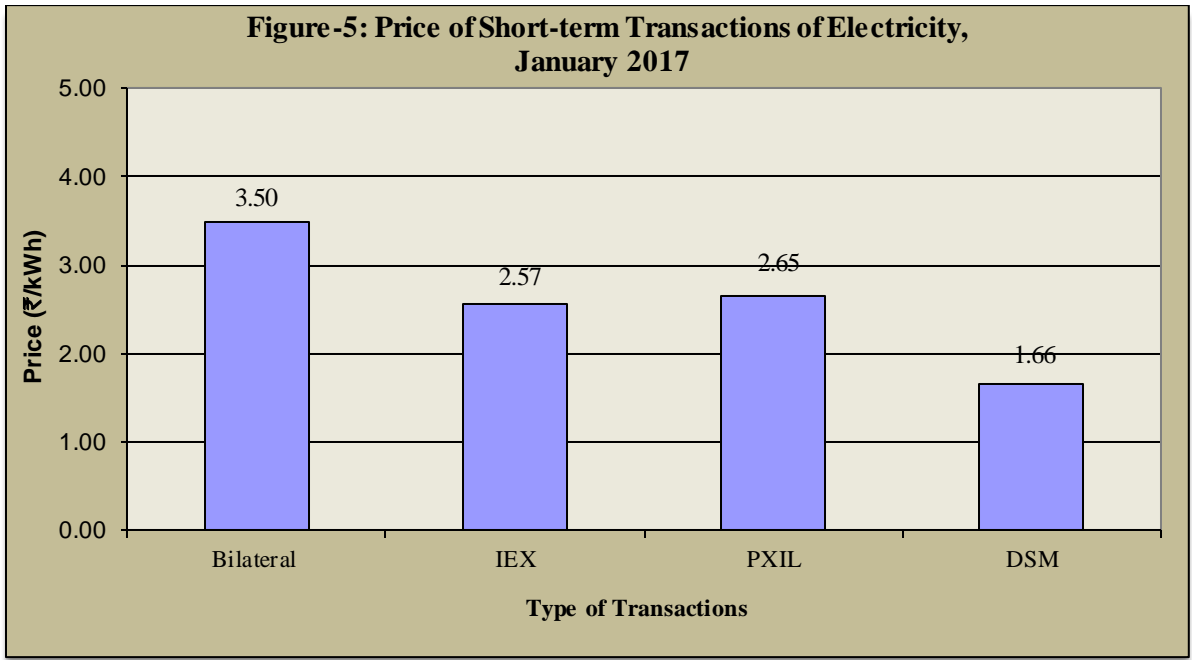
Source: IEX

Table-7: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF PXIL, JANUARY 2017			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	2.44	2.95
2	Daily Contracts		
3	Weekly Contracts		
	<b>Total</b>	<b>2.44</b>	<b>2.95</b>

Source: PXIL

Table-8: PRICE OF ELECTRICITY TRANSACTED THROUGH DSM, JANUARY 2017		
Sr.No	Item	Price in All India Grid (₹/kWh)
1	Minimum	0.00
2	Maximum	5.74
3	Average	1.66

Source: NLDC



<b>Table-9: VOLUME OF ELECTRICITY SOLD THROUGH BILATERAL, JANUARY 2017</b>		
<b>Name of the Entity</b>	<b>Volume of Sale (MUs)</b>	<b>% of Volume</b>
PUNJAB	574.49	12.58
HARYANA	546.92	11.98
ILF&S	418.56	9.17
UTTAR PRADESH	347.88	7.62
ESSAR POWER	308.27	6.75
SEMBCORP	228.42	5.00
JAYPEE NIGRIE	193.01	4.23
JITPL	184.49	4.04
DELHI	156.93	3.44
KORBA WEST POWER	149.13	3.27
WEST BENGAL	149.07	3.27
GUJARAT	130.28	2.85
RAJASTHAN	110.64	2.42
SHREE CEMENT	105.26	2.31
GMR KAMALANGA	97.71	2.14
BALCO	95.15	2.08
ADHUNIK POWER LTD	88.85	1.95
HIMACHAL PRADESH	82.47	1.81
ANDHRA PRADESH	79.30	1.74
CHHATTISGARH	72.96	1.60
ODISHA	68.87	1.51
DB POWER	64.99	1.42
JINDAL POWER	47.32	1.04
ONGC PALATANA	34.41	0.75
TAMIL NADU	33.51	0.73
THERMAL POWERTECH	27.54	0.60
MAHARASHTRA	23.91	0.52
JINDAL STAGE-II	19.69	0.43
COASTGEN	14.31	0.31
KARNATAKA	13.89	0.30
EMCO	12.92	0.28
TELANGANA	12.40	0.27
J & K	10.57	0.23
LANKO_AMK	10.16	0.22
ACBIL	9.81	0.21
DHARIWAL POWER	9.15	0.20
MARUTI COAL	7.55	0.17
NTPC STATIONS (ER)	5.69	0.12
MEENAKSHI	3.80	0.08
MEGHALAYA	3.80	0.08
MP	3.73	0.08
SIMHAPURI	3.60	0.08
DVC	2.01	0.04
SPECTRUM	1.18	0.03
SIKKIM	0.86	0.02
<b>Total</b>	<b>4565.66</b>	<b>100.00</b>
<b>Volume Sold by top 5 Regional Entities</b>	<b>2196.11</b>	<b>48.10</b>

**Table-10: VOLUME OF ELECTRICITY PURCHASED THROUGH BILATERAL,  
JANUARY 2017**

<b>Name of the Entity</b>	<b>Volume of Purchase (MUs)</b>	<b>% of Volume</b>
TAMIL NADU	524.93	11.42
J & K	499.88	10.88
HIMACHAL PRADESH	478.13	10.40
MAHARASHTRA	446.39	9.71
MP	376.90	8.20
RAJASTHAN	320.85	6.98
ESSAR STEEL	298.36	6.49
BIHAR	230.25	5.01
TELANGANA	197.51	4.30
GUJARAT	138.52	3.01
UTTARAKHAND	136.39	2.97
CHHATTISGARH	118.83	2.59
UTTAR PRADESH	103.78	2.26
BANGLADESH	101.83	2.22
KARNATAKA	101.30	2.20
JHARKHAND	96.74	2.10
NEPAL(NVVN)	91.79	2.00
HARYANA	86.43	1.88
ASSAM	64.06	1.39
MEGHALAYA	42.43	0.92
ODISHA	38.78	0.84
DELHI	35.15	0.76
GOA	29.44	0.64
ANDHRA PRADESH	19.83	0.43
MANIPUR	8.25	0.18
WEST BENGAL	5.57	0.12
DAMAN AND DIU	1.77	0.04
KERALA	1.30	0.03
DVC	0.32	0.01
MIZORAM	0.21	0.00
PUNJAB	0.07	0.00
<b>TOTAL</b>	<b>4595.99</b>	<b>100.00</b>
<b>Volume Purchased by top 5 Regional Entities</b>	<b>2326.24</b>	<b>50.61</b>

**Table-11: VOLUME OF ELECTRICITY SOLD THROUGH POWER EXCHANGES,  
JANUARY 2017**

<b>Name of the Entity</b>	<b>Volume of Sale (MUs)</b>	<b>% of Volume</b>
DB POWER	333.57	9.97
JINDAL POWER	234.72	7.02
CHHATTISGARH	195.61	5.85
KORBA WEST POWER	162.80	4.87
MP	136.27	4.07
MARUTI COAL	132.49	3.96
JAYPEE NIGRIE	120.15	3.59
DELHI	113.99	3.41
NLC	101.24	3.03
GUJARAT	98.68	2.95
NTPC STATIONS (WR)	96.60	2.89
DVC	88.61	2.65
SEMBCORP	78.23	2.34
KARNATAKA	69.73	2.09
TELANGANA	69.42	2.08
JITPL	68.51	2.05
ODISHA	66.49	1.99
HIMACHAL PRADESH	64.11	1.92
HARYANA	62.02	1.85
SPECTRUM	60.57	1.81
MB POWER	60.31	1.80
ASSAM	58.14	1.74
KARCHAM WANGTOO	58.11	1.74
ANDHRA PRADESH	57.60	1.72
TRIPURA	56.34	1.68
ACBIL	52.03	1.56
UTTAR PRADESH	51.86	1.55
PUNJAB	49.86	1.49
RAJASTHAN	42.74	1.28
EMCO	41.21	1.23
MEENAKSHI	40.77	1.22
ADHUNIK POWER LTD	37.27	1.11
TAMIL NADU	35.20	1.05
MAHARASHTRA	31.84	0.95
TRN ENERGY	30.67	0.92
WEST BENGAL	26.28	0.79
GOA	24.43	0.73
BALCO	23.60	0.71
DHARIWAL POWER	22.78	0.68
NSPCL	20.17	0.60
SHREE CEMENT	19.63	0.59

NTPC STATIONS (ER)	15.53	0.46
THERMAL POWERTECH	13.97	0.42
JORETHANG	13.58	0.41
ESSAR STEEL	12.40	0.37
UTTARAKHAND	11.83	0.35
AD HYDRO	11.20	0.34
CHUZACHEN HEP	10.80	0.32
MANIPUR	10.12	0.30
J & K	8.35	0.25
SIMHAPURI	7.51	0.22
MIZORAM	6.62	0.20
MAITHON POWER LTD	6.22	0.19
SIKKIM	5.88	0.18
NJPC	4.56	0.14
KERALA	3.55	0.11
GMR KAMALANGA	2.46	0.07
CHANDIGARH	2.18	0.07
NTPC STATIONS (NR)	0.84	0.03
LANCO BUDHIL	0.63	0.02
ILF&S	0.62	0.02
MALANA	0.57	0.02
JINDAL STAGE-II	0.19	0.01
<b>Total</b>	<b>3344.40</b>	<b>100.00</b>
<b>Volume sold by top 5 Regional Entities</b>	<b>1062.97</b>	<b>31.78</b>

**Table-12: VOLUME OF ELECTRICITY PURCHASED THROUGH POWER EXCHANGES, JANUARY 2017**

<b>Name of the Entity</b>	<b>Volume of Purchase (MUs)</b>	<b>% of Volume</b>
GUJARAT	389.16	11.64
MAHARASHTRA	360.71	10.79
RAJASTHAN	338.05	10.11
KARNATAKA	261.35	7.81
HARYANA	232.69	6.96
TELANGANA	228.95	6.85
DADRA & NAGAR HAVELI	228.94	6.85
DELHI	174.15	5.21
J & K	162.97	4.87
WEST BENGAL	149.52	4.47
ANDHRA PRADESH	147.25	4.40
UTTARAKHAND	141.05	4.22
KERALA	119.88	3.58
BIHAR	80.26	2.40
ODISHA	56.67	1.69
MP	52.30	1.56
ASSAM	48.07	1.44
DAMAN AND DIU	41.82	1.25
HIMACHAL PRADESH	32.86	0.98
PUNJAB	24.59	0.74
TAMIL NADU	18.98	0.57
MEGHALAYA	11.18	0.33
ARUNACHAL PRADESH	10.73	0.32
CHANDIGARH	6.83	0.20
NAGALAND	6.77	0.20
DVC	5.70	0.17
MANIPUR	4.60	0.14
PONDICHERRY	3.48	0.10
CHHATTISGARH	2.39	0.07
ESSAR STEEL	2.11	0.06
GOA	0.40	0.01
<b>TOTAL</b>	<b>3344.39</b>	<b>100.00</b>
<b>Volume purchased by top 5 Regional Entities</b>	<b>1581.95</b>	<b>47.30</b>

**Table-13: VOLUME OF ELECTRICITY UNDER DRAWAL (EXPORTED) THROUGH DSM, JANUARY 2017**

Name of the Entity	Volume of Under drawal(MUs)	% of Volume
TAMIL NADU	136.69	8.75
NTPC STATIONS (WR)	125.53	8.03
GUJARAT	105.34	6.74
HARYANA	93.18	5.96
MAHARASHTRA	86.80	5.55
PUNJAB	85.48	5.47
MP	76.44	4.89
UTTAR PRADESH	71.88	4.60
NLC	54.17	3.47
NHPC STATIONS	46.75	2.99
DVC	43.74	2.80
BIHAR	38.91	2.49
CHHATTISGARH	38.70	2.48
SASAN UMPP	35.01	2.24
ODISHA	33.82	2.16
ANDHRA PRADESH	33.22	2.13
HIMACHAL PRADESH	30.88	1.98
RAJASTHAN	27.98	1.79
UTTARAKHAND	27.74	1.77
NTPC STATIONS (ER)	26.00	1.66
TELANGANA	22.95	1.47
NTPC STATIONS (SR)	19.86	1.27
NTPC STATIONS (NR)	18.71	1.20
ESSAR STEEL	17.66	1.13
PONDICHERRY	14.85	0.95
KARNATAKA	12.96	0.83
DELHI	12.56	0.80
JITPL	12.41	0.79
LANKO_AMK	11.48	0.73
WEST BENGAL	9.95	0.64
GOA	17.54	1.12
DADRA & NAGAR HAVELI	8.57	0.55
DB POWER	8.18	0.52
TRIPURA	8.10	0.52
SIKKIM	7.82	0.50
NEEPCO STATIONS	7.55	0.48
NSPCL	7.47	0.48
RGPPL(DABHOL)	6.79	0.43
MEGHALAYA	6.76	0.43
JAYPEE NIGRIE	6.07	0.39
ADHUNIK POWER LTD	5.85	0.37
JINDAL POWER	5.52	0.35
NJPC	5.02	0.32
THERMAL POWERTECH	4.96	0.32



GMR KAMALANGA	4.96	0.32
EMCO	4.91	0.31
ACBIL	4.82	0.31
CGPL	4.46	0.29
MAITHON POWER LTD	4.24	0.27
JHARKHAND	4.05	0.26
JINDAL STAGE-II	3.99	0.26
KSK MAHANADI	3.65	0.23
MB POWER	2.92	0.19
DCPP	2.91	0.19
NEPAL(NVVN)	2.80	0.18
ASSAM	2.76	0.18
TRN ENERGY	2.75	0.18
DAMAN AND DIU	2.70	0.17
TEESTA HEP	2.65	0.17
MANIPUR	2.40	0.15
BANGLADESH	2.35	0.15
SEMBCORP	2.17	0.14
JORETHANG	2.12	0.14
URI-2	2.06	0.13
KORBA WEST POWER	2.04	0.13
COASTGEN	1.78	0.11
SHREE CEMENT	1.65	0.11
CHANDIGARH	1.46	0.09
ESSAR POWER	1.27	0.08
KARCHAM WANGTOO	1.15	0.07
RANGANADI HEP	1.10	0.07
BALCO	1.03	0.07
RANGIT HEP	0.93	0.06
AD HYDRO	0.92	0.06
ILF&S	0.89	0.06
KERALA	0.86	0.05
ARUNACHAL PRADESH	0.70	0.04
MEENAKSHI	0.65	0.04
LOKTAK	0.58	0.04
DOYANG HEP	0.49	0.03
DHARIWAL POWER	0.39	0.02
MIZORAM	0.34	0.02
CHUZACHEN HEP	0.29	0.02
NAGALAND	0.21	0.01
LANCO BUDHIL	0.16	0.01
SIMHAPURI	0.16	0.01
MALANA	0.11	0.01
<b>Total</b>	<b>1562.64</b>	<b>100.00</b>
<b>Volume Exported by top 5 Regional Entities</b>	<b>547.55</b>	<b>35.04</b>

**Table-14: VOLUME OF ELECTRICITY OVER DRAWAL (IMPORTED) THROUGH DSM, JANUARY 2017**

<b>Name of the Entity</b>	<b>Volume of Over drawal (MUs)</b>	<b>% of Volume</b>
RAJASTHAN	114.82	6.68
UTTAR PRADESH	106.77	6.21
NTPC STATIONS (WR)	93.25	5.43
KARNATAKA	92.81	5.40
NTPC STATIONS (NR)	89.58	5.21
KERALA	78.13	4.55
JHARKHAND	59.49	3.46
MAHARASHTRA	56.89	3.31
WEST BENGAL	55.78	3.25
TELANGANA	55.74	3.24
DELHI	50.46	2.94
NTPC STATIONS (ER)	49.54	2.88
UTTARAKHAND	48.45	2.82
ANDHRA PRADESH	47.93	2.79
BIHAR	45.97	2.68
ASSAM	38.95	2.27
GUJARAT	37.59	2.19
CGPL	34.11	1.99
HARYANA	33.45	1.95
BALCO	32.56	1.89
ESSAR STEEL	31.91	1.86
HIMACHAL PRADESH	29.03	1.69
PUNJAB	27.05	1.57
DVC	26.51	1.54
ODISHA	26.43	1.54
MP	25.94	1.51
CHHATTISGARH	24.71	1.44
TAMIL NADU	21.03	1.22
NTPC STATIONS (SR)	17.74	1.03
CHANDIGARH	14.64	0.85
ILF&S	14.28	0.83
ARUNACHAL PRADESH	13.67	0.80
NLC	13.48	0.78
GOA	12.54	0.73
MIZORAM	10.26	0.60
SHREE CEMENT	10.21	0.59
NAGALAND	9.64	0.56
TRIPURA	9.53	0.55
ESSAR POWER	8.89	0.52
KARCHAM WANGTOO	8.27	0.48
GMR KAMALANGA	8.17	0.48
SEMBCORP	7.57	0.44
EMCO	7.34	0.43
ACBIL	6.57	0.38
MANIPUR	6.24	0.36
NJPC	5.86	0.34
JINDAL STAGE-II	5.51	0.32
NHPC STATIONS	5.38	0.31

BANGLADESH	4.52	0.26
JAYPEE NIGRIE	4.48	0.26
JITPL	4.39	0.26
NSPCL	4.36	0.25
THERMAL POWERTECH	4.30	0.25
DAMAN AND DIU	4.27	0.25
MAITHON POWER LTD	4.06	0.24
DCPP	3.89	0.23
JINDAL POWER	3.56	0.21
NEPAL(NVVN)	3.38	0.20
SASAN UMPP	3.33	0.19
DAGACHU	3.30	0.19
DADRA & NAGAR HAVELI	3.28	0.19
JORETHANG	2.95	0.17
MEGHALAYA	2.94	0.17
JHABUA POWER_MP	2.83	0.16
COASTGEN	2.53	0.15
DB POWER	2.45	0.14
MEENAKSHI	1.99	0.12
KSK MAHANADI	1.82	0.11
GMR CHHATTISGARH	1.77	0.10
ADHUNIK POWER LTD	1.51	0.09
PONDICHERY	1.49	0.09
MB POWER	1.45	0.08
RANGANADI HEP	1.41	0.08
RGPPL(DABHOL)	1.34	0.08
LANKO KONDAPALLI	1.28	0.07
SIKKIM	1.17	0.07
DGEN MEGA POWER	1.10	0.06
SIMHAPURI	1.01	0.06
AD HYDRO	0.83	0.05
URI-2	0.64	0.04
DHARIWAL POWER	0.63	0.04
RANGIT HEP	0.63	0.04
NEEPCO STATIONS	0.61	0.04
LANCO BUDHIL	0.58	0.03
DOYANG HEP	0.40	0.02
LOKTAK	0.32	0.02
LANKO_AMK	0.26	0.02
MALANA	0.25	0.01
TEESTA HEP	0.13	0.01
CHUZACHEN HEP	0.11	0.01
<b>TOTAL</b>	<b>1718.22</b>	<b>100.00</b>
<b>Volume Imported by top 5 Regional Entities</b>	<b>497.23</b>	<b>28.94</b>

**Table-15: TOTAL VOLUME OF NET SHORT-TERM TRANSACTIONS OF ELECTRICITY  
(REGIONAL ENTITY-WISE), JANUARY 2017**

<b>Sr.No.</b>	<b>Name of the Entity</b>	<b>Total volume of net short-term transactions of electricity*</b>
1	MAHARASHTRA	721.43
2	J & K	643.93
3	RAJASTHAN	592.35
4	TELANGANA	377.42
5	HIMACHAL PRADESH	362.56
6	TAMIL NADU	359.53
7	KARNATAKA	358.89
8	BIHAR	317.58
9	ESSAR STEEL	302.32
10	UTTARAKHAND	286.33
11	MP	238.70
12	GUJARAT	230.97
13	DADRA & NAGAR HAVELI	223.66
14	KERALA	194.91
15	JHARKHAND	152.18
16	BANGLADESH	103.99
17	NEPAL(NVVN)	92.37
18	ASSAM	90.18
19	NTPC STATIONS (NR)	70.03
20	MEGHALAYA	46.00
21	DAMAN AND DIU	45.16
22	ANDHRA PRADESH	44.89
23	CGPL	29.66
24	WEST BENGAL	25.57
25	ARUNACHAL PRADESH	23.70
26	CHANDIGARH	17.82
27	NAGALAND	16.20
28	GOA	0.41
29	MANIPUR	6.58
30	MIZORAM	3.52
31	DAGACHU	3.22
32	JHABUA POWER_MP	2.83
33	NTPC STATIONS (ER)	2.32
34	GMR CHHATTISGARH	1.77
35	LANKO KONDAPALLI	1.28
36	DGEN MEGA POWER	1.10
37	DCPP	0.99
38	RANGANADI HEP	0.31
39	DOYANG HEP	-0.09
40	NTPC STATIONS (NER)	-0.10
41	LANCO BUDHIL	-0.22
42	LOKTAK	-0.26
43	RANGIT HEP	-0.30
44	MALANA	-0.43
45	URI-2	-1.42
46	KSK MAHANADI	-1.83
47	NTPC STATIONS (SR)	-2.12
48	TEESTA HEP	-2.52
49	NJPC	-3.73

50	RGPPL(DABHOL)	-5.45
51	MAITHON POWER LTD	-6.40
52	NEEPCO STATIONS	-6.94
53	PONDICHERRY	-9.88
54	SIMHAPURI	-10.25
55	CHUZACHEN HEP	-10.98
56	AD HYDRO	-11.29
57	JORETHANG	-12.75
58	SIKKIM	-13.39
59	COASTGEN	-13.56
60	JINDAL STAGE-II	-18.37
61	LANKO_AMK	-21.37
62	NSPCL	-23.28
63	DELHI	-23.72
64	SASAN UMPP	-31.67
65	DHARIWAL POWER	-31.69
66	TRN ENERGY	-33.36
67	ONGC PALATANA	-34.41
68	NHPC STATIONS	-41.37
69	THERMAL POWERTECH	-42.16
70	MEENAKSHI	-43.22
71	ODISHA	-47.31
72	KARCHAM WANGTOO	-50.98
73	EMCO	-51.70
74	TRIPURA	-55.11
75	ACBIL	-60.09
76	SPECTRUM	-61.75
77	MB POWER	-61.79
78	BALCO	-87.22
79	GMR KAMALANGA	-96.96
80	DVC	-101.83
81	SHREE CEMENT	-116.34
82	NTPC STATIONS (WR)	-128.87
83	ADHUNIK POWER LTD	-130.46
84	MARUTI COAL	-140.04
85	NLC	-141.93
86	CHHATTISGARH	-161.34
87	JITPL	-261.02
88	UTTAR PRADESH	-261.07
89	JINDAL POWER	-283.99
90	ESSAR POWER	-300.65
91	SEMBICORP	-301.25
92	KORBA WEST POWER	-313.97
93	JAYPEE NIGRIE	-314.75
94	HARYANA	-349.55
95	DB POWER	-404.29
96	ILF&S	-405.79
97	PUNJAB	-658.13
* 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		

<b>Table-16: DETAILS OF CONGESTION IN POWER EXCHANGES, JANUARY 2017</b>			
	<b>Details of Congestion</b>	<b>IEX</b>	<b>PXIL</b>
A	Unconstrained Cleared Volume* (MUs)	3298.57	6.54
B	Actual Cleared Volume and hence scheduled (MUs)	3230.61	5.26
C	Volume of electricity that could not be cleared and hence not scheduled because of congestion (MUs) (A-B)	67.96	1.28
D	Volume of electricity that could not be cleared as % to Unconstrained Cleared Volume	2.06%	19.57%
E	Percentage of the time congestion occurred during the month (Number of hours congestion occurred/Total number of hours in the month)	67.14%	8.40%
F	Congestion occurrence (%) time block wise		
	0.00 - 6.00 hours	6.66%	0.00%
	6.00 - 12.00 hours	32.98%	0.00%
	12.00 - 18.00 hours	29.68%	0.00%
	18.00 - 24.00 hours	30.68%	100.00%
<i>* This power would have been scheduled had there been no congestion.</i>			
<i>Source: IEX &amp; PXIL &amp; NLDC</i>			

<b>Table-17: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY IN INDIA (DAY-WISE) (MUs), JANUARY 2017</b>						
<b>Date</b>	<b>Bilateral</b>		<b>Power Exchange (Area Clearing Volume# of Day Ahead Market)</b>		<b>Deviation Settlement (Over Drawl+Under Generation)</b>	<b>Total Electricity Generation (MU) as given at CEA Website*</b>
	<b>Through Traders and PXs**</b>	<b>Direct</b>	<b>IEX</b>	<b>PXIL</b>		
1-Jan-17	64.59	65.72	89.92	0.23	75.28	3014.00
2-Jan-17	67.56	71.71	106.28	0.24	91.23	3101.29
3-Jan-17	68.85	74.12	104.11	0.24	95.23	3159.51
4-Jan-17	75.27	70.87	109.57	0.23	97.14	3208.40
5-Jan-17	75.94	69.05	113.34	0.13	83.71	3229.73
6-Jan-17	79.50	67.82	109.30	0.03	77.30	3206.95
7-Jan-17	78.12	68.89	104.14	0.03	80.60	3089.20
8-Jan-17	78.62	62.96	85.56	0.10	73.78	2998.91
9-Jan-17	84.10	65.68	106.10	0.03	78.21	3102.20
10-Jan-17	85.46	67.69	109.05	0.04	87.74	2928.89
11-Jan-17	92.79	66.70	106.63	0.20	101.75	3140.31
12-Jan-17	82.58	68.43	111.90	0.20	80.48	3147.50
13-Jan-17	88.47	70.24	109.74	0.20	87.14	3120.21
14-Jan-17	75.19	64.01	103.57	0.04	94.72	2937.87
15-Jan-17	75.28	59.89	90.03	0.13	84.90	2896.45
16-Jan-17	81.99	57.39	101.64	0.08	83.35	3035.70
17-Jan-17	81.99	57.24	101.34	0.22	86.06	3112.50
18-Jan-17	80.70	58.06	105.35	0.25	88.61	3091.60
19-Jan-17	79.00	56.56	105.99	0.25	87.98	3046.33
20-Jan-17	83.40	58.37	103.97	0.22	84.93	3074.80
21-Jan-17	84.19	58.26	106.19	0.04	92.82	3105.47
22-Jan-17	77.37	56.99	98.85	0.04	87.06	3003.93
23-Jan-17	79.60	56.91	108.28	0.25	91.10	3120.64
24-Jan-17	85.64	58.58	112.69	0.24	89.93	3164.54
25-Jan-17	82.66	61.46	114.57	0.26	93.76	3171.45
26-Jan-17	80.27	57.89	96.46	0.26	108.06	2893.30
27-Jan-17	83.62	60.77	113.09	0.23	106.96	2888.06
28-Jan-17	82.64	63.99	105.11	0.16	110.92	2990.30
29-Jan-17	86.24	58.14	95.43	0.16	107.75	2927.44
30-Jan-17	90.53	59.99	101.02	0.31	98.20	3072.80
31-Jan-17	92.52	60.41	101.37	0.25	106.86	3132.44
<b>Total</b>	<b>2504.68</b>	<b>1954.80</b>	<b>3230.61</b>	<b>5.26</b>	<b>2813.57</b>	<b>95112.72</b>
Source: NLDC						
* Gross Electricity Generation excluding electricity generation from renewables and captive power plants.						
** The volume of bilateral through PXs represents the volume through term-ahead contracts.						
# Area Clearing Volume represents the scheduled volume of all the bid areas.						

**Table-18: PRICE OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (DAY-WISE)( ₹/kWh), JANUARY, 2017**

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-Jan-17	0.80	4.25	2.17	2.10	2.70	2.67	0.00	3.45	1.62
2-Jan-17	0.80	3.50	2.28	2.10	2.69	2.65	0.00	4.91	1.65
3-Jan-17	1.57	4.35	2.45	1.85	2.70	2.65	0.36	3.45	2.17
4-Jan-17	1.73	4.44	2.72	1.95	2.70	2.66	0.00	3.45	2.02
5-Jan-17	1.70	4.65	2.69	1.95	3.00	2.67	0.00	3.45	1.76
6-Jan-17	1.79	4.59	2.71	1.50	3.34	2.48	0.00	3.24	1.66
7-Jan-17	1.77	4.75	2.69	1.60	3.10	2.50	0.00	3.24	1.43
8-Jan-17	1.00	4.40	2.33	1.75	3.04	2.58	0.00	3.03	1.44
9-Jan-17	1.70	4.40	2.62	1.64	2.81	2.45	0.00	3.45	1.61
10-Jan-17	1.70	4.16	2.64	2.08	2.81	2.45	0.00	5.74	1.88
11-Jan-17	1.79	4.00	2.71	2.10	2.81	2.65	0.00	4.91	1.93
12-Jan-17	1.87	6.00	2.77	2.25	2.81	2.66	0.00	3.45	1.82
13-Jan-17	1.75	6.50	2.79	2.25	2.71	2.66	0.00	3.45	1.55
14-Jan-17	1.50	5.00	2.50	2.35	2.76	2.55	0.00	3.45	1.36
15-Jan-17	0.90	5.74	2.46	2.18	2.71	2.63	0.00	3.24	1.47
16-Jan-17	1.00	6.50	2.68	1.98	2.71	2.57	0.00	3.45	1.47
17-Jan-17	1.73	4.20	2.76	1.29	2.88	2.65	0.00	3.45	1.78
18-Jan-17	1.75	8.00	2.87	1.74	3.78	2.67	0.00	3.45	1.58
19-Jan-17	1.75	7.00	2.69	1.75	3.11	2.66	0.00	3.24	1.47
20-Jan-17	1.75	6.50	2.79	1.75	3.11	2.65	0.00	3.24	1.82
21-Jan-17	1.75	9.00	2.79	1.83	3.19	2.50	0.00	3.03	1.48
22-Jan-17	0.90	3.80	2.42	1.75	3.11	2.42	0.00	3.45	1.48
23-Jan-17	1.75	9.01	2.83	1.75	3.11	2.65	0.00	5.74	1.63
24-Jan-17	1.86	4.00	2.68	1.75	3.40	2.71	0.00	3.45	1.62
25-Jan-17	1.90	6.50	2.73	1.75	3.24	2.72	0.00	3.24	2.03
26-Jan-17	1.90	3.49	2.34	1.70	3.12	2.66	0.00	3.45	1.22
27-Jan-17	1.85	4.14	2.60	1.70	3.12	2.66	0.00	3.45	1.56
28-Jan-17	1.90	6.50	2.71	1.85	2.98	2.63	0.00	3.45	1.92
29-Jan-17	1.61	5.00	2.45	1.75	3.11	2.64	0.00	3.24	1.65
30-Jan-17	1.87	6.50	2.72	1.75	2.97	2.68	0.00	3.45	1.82
31-Jan-17	2.01	7.00	2.75	1.88	2.95	2.70	0.00	3.45	1.67
	<b>0.80#</b>	<b>9.01#</b>	<b>2.57</b>	<b>1.29#</b>	<b>3.78#</b>	<b>2.65</b>	<b>0.00#</b>	<b>5.74#</b>	<b>1.66</b>

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

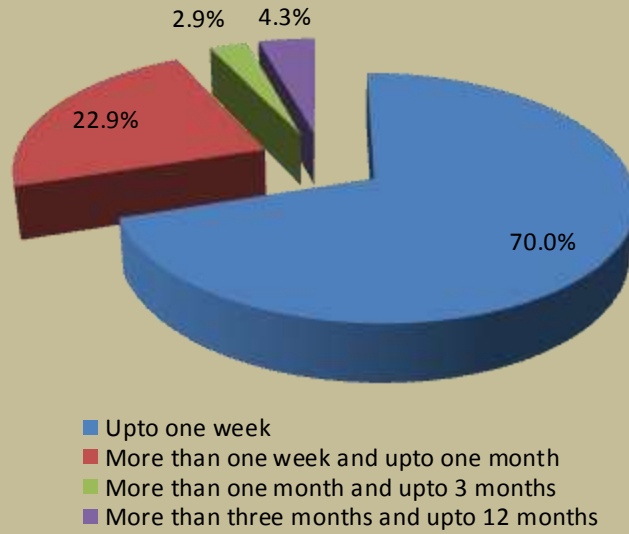


**Table-19: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (REGIONAL ENTITY\*-WISE) (MUs),  
JANUARY 2017**

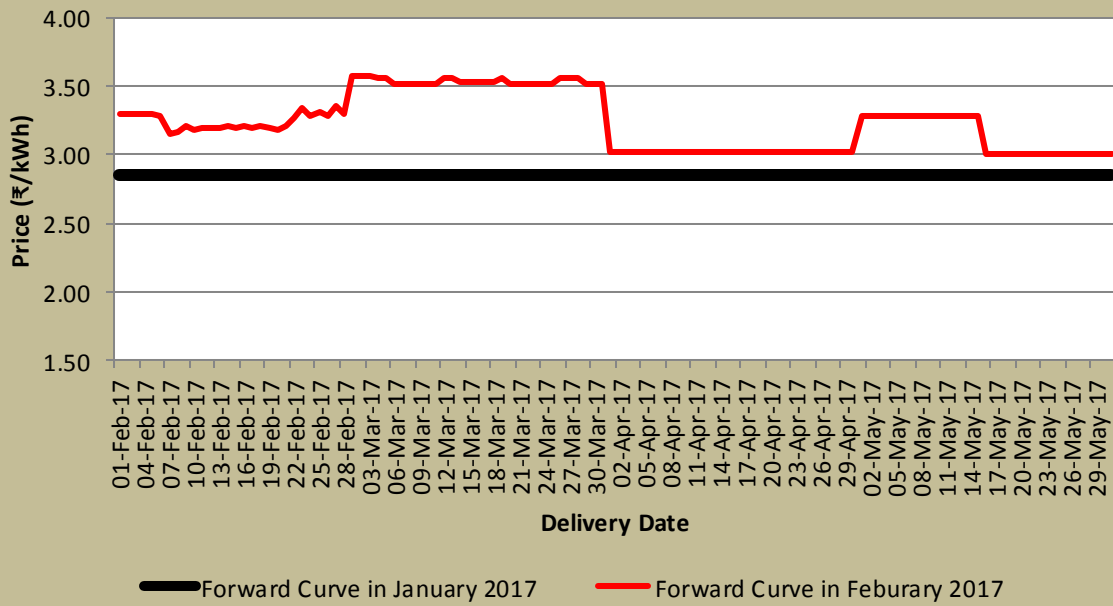
Name of the Entity	Through Bilateral			Through Power Exchange			Through DSM with Regional Grid			Total Net***
	Sale	Purchase	Net**	Sale	Purchase	Net**	Import (Over Draw)	Export (Under Draw)	Net**	
PUNJAB	574.49	0.07	-574.42	49.86	24.59	-25.28	27.05	85.48	-58.43	-658.13
HARYANA	546.92	86.43	-460.49	62.02	232.69	170.67	33.45	93.18	-59.73	-349.55
RAJASTHAN	110.64	320.85	210.21	42.74	338.05	295.31	114.82	27.98	86.83	592.35
DELHI	156.93	35.15	-121.78	113.99	174.15	60.16	50.46	12.56	37.90	-23.72
UP	347.88	103.78	-244.10	51.86	0.00	-51.86	106.77	71.88	34.88	-261.07
UTTARAKHAND	0.00	136.39	136.39	11.83	141.05	129.22	48.45	27.74	20.72	286.33
HIMACHAL PR	82.47	478.13	395.66	64.11	32.86	-31.25	29.03	30.88	-1.85	362.56
J & K	10.57	499.88	489.31	8.35	162.97	154.62	0.00	0.00	0.00	643.93
CHANDIGARH	0.00	0.00	0.00	2.18	6.83	4.65	14.64	1.46	13.17	17.82
MP	3.73	376.90	373.17	136.27	52.30	-83.97	25.94	76.44	-50.50	238.70
MAHARASHTRA	23.91	446.39	422.48	31.84	360.71	328.87	56.89	86.80	-29.92	721.43
GUJARAT	130.28	138.52	8.24	98.68	389.16	290.48	37.59	105.34	-67.75	230.97
CHHATTISGARH	72.96	118.83	45.87	195.61	2.39	-193.22	24.71	38.70	-13.99	-161.34
GOA	0.00	29.44	29.44	24.43	0.40	-24.03	12.54	17.54	-4.99	0.41
DAMAN AND DIU	0.00	1.77	1.77	0.00	41.82	41.82	4.27	2.70	1.58	45.16
DADRA & NAGAR	0.00	0.00	0.00	0.00	228.94	228.94	3.28	8.57	-5.28	223.66
ANDHRA PR	79.30	19.83	-59.47	57.60	147.25	89.65	47.93	33.22	14.72	44.89
KARNATAKA	13.89	101.30	87.42	69.73	261.35	191.62	92.81	12.96	79.85	358.89
KERALA	0.00	1.30	1.30	3.55	119.88	116.33	78.13	0.86	77.27	194.91
TAMIL NADU	33.51	524.93	491.41	35.20	18.98	-16.22	21.03	136.69	-115.66	359.53
PONDICHERY	0.00	0.00	0.00	0.00	3.48	3.48	1.49	14.85	-13.37	-9.88
TELANGANA	12.40	197.51	185.10	69.42	228.95	159.53	55.74	22.95	32.79	377.42
WEST BENGAL	149.07	5.57	-143.50	26.28	149.52	123.24	55.78	9.95	45.83	25.57
ODISHA	68.87	38.78	-30.09	66.49	56.67	-9.83	26.43	33.82	-7.39	-47.31
BIHAR	0.00	230.25	230.25	0.00	80.26	80.26	45.97	38.91	7.06	317.58
JHARKHAND	0.00	96.74	96.74	0.00	0.00	0.00	59.49	4.05	55.44	152.18
SIKKIM	0.86	0.00	-0.86	5.88	0.00	-5.88	1.17	7.82	-6.65	-13.39
DVC	2.01	0.32	-1.68	88.61	5.70	-82.91	26.51	43.74	-17.23	-101.83
ARUNACHAL PR	0.00	0.00	0.00	0.00	10.73	10.73	13.67	0.70	12.97	23.70
ASSAM	0.00	64.06	64.06	58.14	48.07	-10.07	38.95	2.76	36.19	90.18
MANIPUR	0.00	8.25	8.25	10.12	4.60	-5.51	6.24	2.40	3.85	6.58
MEGHALAYA	3.80	42.43	38.63	0.00	11.18	11.18	2.94	6.76	-3.82	46.00
NAGALAND	0.00	0.00	0.00	0.00	6.77	6.77	9.64	0.21	9.43	16.20
TRIPURA	0.21	0.00	-0.21	56.34	0.00	-56.34	9.53	8.10	1.44	-55.11
NTPCSTATIONS(NR)	0.00	0.00	0.00	0.84	0.00	-0.84	89.58	18.71	70.86	70.03
NHPC STATIONS	0.00	0.00	0.00	0.00	0.00	0.00	5.38	46.75	-41.37	-41.37
AD HYDRO	0.00	0.00	0.00	11.20	0.00	-11.20	0.83	0.92	-0.09	-11.29
KARCHAM WANGTOO	0.00	0.00	0.00	58.11	0.00	-58.11	8.27	1.15	7.12	-50.98

SHREE CEMENT	105.26	0.00	-105.26	19.63	0.00	-19.63	10.21	1.65	8.56	-116.34
NTPC STATIONS(WR)	0.00	0.00	0.00	96.60	0.00	-96.60	93.25	125.53	-32.28	-128.87
JINDAL POWER	47.32	0.00	-47.32	234.72	0.00	-234.72	3.56	5.52	-1.95	-283.99
LANKO_AMK	10.16	0.00	-10.16	0.00	0.00	0.00	0.26	11.48	-11.22	-21.37
NSPCL	0.00	0.00	0.00	20.17	0.00	-20.17	4.36	7.47	-3.11	-23.28
ACBIL	9.81	0.00	-9.81	52.03	0.00	-52.03	6.57	4.82	1.75	-60.09
BALCO	95.15	0.00	-95.15	23.60	0.00	-23.60	32.56	1.03	31.52	-87.22
CGPL	0.00	0.00	0.00	0.00	0.00	0.00	34.11	4.46	29.66	29.66
EMCO	12.92	0.00	-12.92	41.21	0.00	-41.21	7.34	4.91	2.42	-51.70
ESSAR STEEL	0.00	298.36	298.36	12.40	2.11	-10.29	31.91	17.66	14.25	302.32
ESSAR POWER	308.27	0.00	-308.27	0.00	0.00	0.00	8.89	1.27	7.62	-300.65
JINDAL STAGE-II	19.69	0.00	-19.69	0.19	0.00	-0.19	5.51	3.99	1.52	-18.37
DB POWER	64.99	0.00	-64.99	333.57	0.00	-333.57	2.45	8.18	-5.73	-404.29
DHARIWAL POWER	9.15	0.00	-9.15	22.78	0.00	-22.78	0.63	0.39	0.25	-31.69
JAYPEE NIGRIE	193.01	0.00	-193.01	120.15	0.00	-120.15	4.48	6.07	-1.59	-314.75
KORBA WEST	149.13	0.00	-149.13	162.80	0.00	-162.80	0.00	2.04	-2.04	-313.97
MB POWER	0.00	0.00	0.00	60.31	0.00	-60.31	1.45	2.92	-1.47	-61.79
MARUTI COAL	7.55	0.00	-7.55	132.49	0.00	-132.49	0.00	0.00	0.00	-140.04
SPECTRUM	1.18	0.00	-1.18	60.57	0.00	-60.57	0.00	0.00	0.00	-61.75
SASAN UMPP	0.00	0.00	0.00	0.00	0.00	0.00	3.33	35.01	-31.67	-31.67
TRN ENERGY	0.00	0.00	0.00	30.67	0.00	-30.67	0.06	2.75	-2.69	-33.36
NTPC STATIONS(SR)	0.00	0.00	0.00	0.00	0.00	0.00	17.74	19.86	-2.12	-2.12
SIMHAPURI	3.60	0.00	-3.60	7.51	0.00	-7.51	1.01	0.16	0.86	-10.25
MEENAKSHI	3.80	0.00	-3.80	40.77	0.00	-40.77	1.99	0.65	1.34	-43.22
COASTGEN	14.31	0.00	-14.31	0.00	0.00	0.00	2.53	1.78	0.76	-13.56
THERMAL POWER	27.54	0.00	-27.54	13.97	0.00	-13.97	4.30	4.96	-0.66	-42.16
ILF&S	418.56	0.00	-418.56	0.62	0.00	-0.62	14.28	0.89	13.39	-405.79
NLC	0.00	0.00	0.00	101.24	0.00	-101.24	13.48	54.17	-40.69	-141.93
SEMBCORP	228.42	0.00	-228.42	78.23	0.00	-78.23	7.57	2.17	5.40	-301.25
NTPC STATIONS(ER)	5.69	0.00	-5.69	15.53	0.00	-15.53	49.54	26.00	23.54	2.32
ADHUNIK POWER	88.85	0.00	-88.85	37.27	0.00	-37.27	1.51	5.85	-4.34	-130.46
CHUZACHEN HEP	0.00	0.00	0.00	10.80	0.00	-10.80	0.11	0.29	-0.18	-10.98
GMR KAMALANGA	97.71	0.00	-97.71	2.46	0.00	-2.46	8.17	4.96	3.21	-96.96
JITPL	184.49	0.00	-184.49	68.51	0.00	-68.51	4.39	12.41	-8.02	-261.02
JORETHANG	0.00	0.00	0.00	13.58	0.00	-13.58	2.95	2.12	0.84	-12.75
NEPAL(NVWN)	0.00	91.79	91.79	0.00	0.00	0.00	3.38	2.80	0.58	92.37
BANGLADESH	0.00	101.83	101.83	0.00	0.00	0.00	4.52	2.35	2.17	103.99
NEEPCO	0.00	0.00	0.00	0.00	0.00	0.00	0.61	7.55	-6.94	-6.94
ONGC PALATANA	34.41	0.00	-34.41	0.00	0.00	0.00	0.00	0.00	0.00	-34.41
LOKTAK	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.58	-0.26	186.16
<b>TOTAL</b>	<b>4565.66</b>	<b>4595.99</b>	<b>30.33</b>	<b>3344.40</b>	<b>3344.40</b>	<b>0.00</b>	<b>1718.28</b>	<b>1562.71</b>	<b>155.57</b>	<b>372.32</b>
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 February, 2017**



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



<b>Table-20 : VOLUME AND PRICE OF RENEWABLE ENERGY CERTIFICATES (RECs) TRANSACTED THROUGH POWER EXCHANGES, JANUARY 2017</b>					
<b>Sr.No.</b>	<b>Details of REC Transactions</b>	<b>IEX</b>		<b>PXIL</b>	
		<b>Solar</b>	<b>Non-Solar</b>	<b>Solar</b>	<b>Non Solar</b>
A	Volume of Buy Bid	39572	1248242	8327	272051
B	Volume of Sell Bid	3251453	9199168	1172706	4803397
C	Ratio of Buy Bid to Sell Bid Volume	0.012	0.136	0.007	0.057
D	Market Clearing Volume (MWh)	39572	1248242	8327	272051
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>