

Monthly Report on Short-term Transactions of Electricity in India

February, 2017



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



Contents

S.No.	Contents	Page No
	Contents	i
	List of Tables and Figures	ii
	Abbreviations	iii
	Introduction	1
I	Volume of Short-term Transactions of Electricity	1
II	Price of Short-term Transactions of Electricity	2
(i)	<i>Price of electricity transacted through Traders</i>	2
(ii)	<i>Price of electricity transacted through Power Exchanges</i>	3
(iii)	<i>Price of electricity transacted through DSM</i>	3
III	Volume of Short-term Transactions of Electricity (Regional Entity-wise)	3
IV	Congestion on Inter-State Transmission Corridor for Day-Ahead Market on Power Exchanges	4
V	Bilateral Contracts executed by Traders	5
(i)	<i>Duration of bilateral contracts</i>	5
(ii)	<i>Forward Curve based on Price of bilateral contracts</i>	5
VI	Volume and Price of Renewable Energy Certificates (RECs)	6
VII	Inferences	7

List of Tables and Figures

S.No.	List of Tables and Figures	Page No.
I List of Tables		
Table-1	Volume of Short-term Transactions of Electricity in India	9
Table-2	Percentage Share of Electricity Transacted by Trading Licensees	11
Table-3	Price of Electricity Transacted through Traders	12
Table-4	Price of Electricity Transacted through Traders (Time-wise)	12
Table-5	Price of Electricity Transacted through Power Exchanges	12
Table-6	Volume and Price of Electricity in Term Ahead Market of IEX	12
Table-7	Volume and Price of Electricity in Term Ahead Market of PXIL	12
Table-8	Price of Electricity Transacted through DSM	12
Table-9	Volume of Electricity Sold through Bilateral	14
Table-10	Volume of Electricity Purchased through Bilateral	15
Table-11	Volume of Electricity Sold through Power Exchanges	16
Table-12	Volume of Electricity Purchased through Power Exchanges	18
Table-13	Volume of Electricity Underdrawal through DSM	19
Table-14	Volume of Electricity Over drawal through DSM	21
Table-15	Total Volume of Net Short-term Transactions of Electricity (Regional Entity-wise)	23
Table-16	Details of Congestion in Power Exchanges	25
Table-17	Volume of Short-term Transactions of Electricity in India (Day-wise)	26
Table-18	Price of Electricity in Short-term Transactions (Day-wise)	27
Table-19	Volume of Short-term Transactions of Electricity (Regional Entity-wise)	28
Table-20	Volume and Price of Renewable Energy Certificates (RECs) Transacted through Power Exchanges	31
II List of Figures		
Figure-1	Volume of Short-term Transactions of Electricity	9
Figure-2	Volume of Various Kinds of Electricity Transactions in Total Electricity Generation	9
Figure-3	Volume of Short-term Transactions of Electricity (Day-wise)	10
Figure-4	Percentage Share of Electricity Transacted by Trading Licensees	11
Figure-5	Price of Electricity in Short-term Transactions	13
Figure-6	Price of Electricity in Short-term Transactions (Day-wise)	13
Figure-7	Bilateral Contracts Executed by Traders in March, 2017	30
Figure-8	Forward Curve based on Prices of Bilateral Contracts	30

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
SEMBCORP	SembcorpGayatri Power Ltd
SHREE CEMENT	Shree Cement Limited
SIMHAPURI	Simhapuri Energy Private Limited
SPECTRUM	Spectrum Power Generation Ltd
TEESTA STG3	TEESTA STG3 Hydro Power Project

Introduction

A well-functioning electricity market requires an effective market monitoring process. As part of the market monitoring process, the monthly report on short-term transactions of electricity, is being prepared and posted on the website of CERC since August 2008. Here, “short-term transactions of electricity” refers to the contracts of less than one year period, for electricity transacted (inter-State & intra-State) through inter-State Trading Licensees and directly by the Distribution Licensees, Power Exchanges (Indian Energy Exchange Ltd (IEX) and Power Exchange India Ltd (PXIL), and Deviation Settlement Mechanism (DSM). The objectives of the report are: (i) to observe the trends in volume and price of the short-term transactions of electricity; (ii) to analyse competition among the market players; (iii) to analyse effect of congestion on volume of electricity transacted through power exchanges; (iv) to analyse bilateral contracts executed by traders; (v) to provide information on volume and price of Renewable Energy Certificates (RECs) transacted through power exchanges; and (vi) to disclose/disseminate all relevant market information. The details of the report for the month of **February, 2017** are as under:

I: Volume of Short-term Transactions of Electricity

During February 2017, total electricity generation excluding generation from renewable and captive power plants in India was 88972.84MUs (Table-1).

Of the total electricity generation, 8311.59MUs (9.34%) was transacted through short-term, comprising of 3966.54MUs (4.46%) through bilateral (through traders and term-ahead contracts on power exchanges and directly between distribution companies), followed by 2934.73MUs (3.30%) through day ahead collective transactions on power exchanges (IEX and PXIL) and 1410.32MUs (1.59%) through DSM (Table-1 & Figure-2).

Of the total short-term transactions, bilateral constitutes 47.72% (32.88% through traders and term-ahead contracts on power exchanges and 14.84% directly between distribution companies) followed by 35.31% through day ahead collective transactions on power exchanges and 16.97% 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 February, 2017. In February, 2017, 21 trading licensees were engaged in short term trading. Top 5 trading licensees had a share of 73.37% 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 Tata Power Trading Company (P) 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 0.1520 for the month of February, 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 2926.89MUs and 7.84MUs respectively. The volume of total buy bids and sell bids was 3525.53MUs and 5835.23MUs respectively in IEX while the same was 14.61MUs and 50.37MUs 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 13.76MUs and 9.78MUs 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 ₹2.10/kWh, ₹4.70/kWh and ₹3.30/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 ₹3.37/kWh, ₹4.11/kWh and ₹2.74/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 ₹0.30/kWh, ₹15.06/kWh and ₹2.64/kWh respectively in IEX and ₹1.60/kWh, ₹3.30/kWh and ₹2.69/kWh respectively in PXIL (Table-5).

The price of electricity transacted through IEX and PXIL in the term-ahead market was ₹2.93/kWh and ₹2.77/kWh respectively (Table-6 and Table-7).

(iii) Price of electricity transacted through DSM: The average deviation settlement price was ₹1.73/kWh. The minimum and maximum deviation settlement prices were ₹0.00/kWh and ₹5.11/kWh respectively (Table-8).

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

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

Of the total bilateral transactions, top 5 regional entities sold 41.22% of the volume, and these were Haryana, Infrastructure Leasing & Financial Services Limited, SEMBCORP, Uttar Pradesh and Korba West Power Company Ltd. Top 5 regional entities purchased 52.59% of the volume, and these were Maharashtra, Tamil Nadu, Himachal Pradesh, Jammu & Kashmir and Rajasthan (Table-9 & 10).

Of the total power exchange transactions, top 5 regional entities sold 35.32% of the volume, and these were Diligent Power Pvt. Ltd., Jindal India Thermal Power Ltd., Neyveli Lignite Corporation Limited, Chhattisgarh and Delhi. Top 5 regional entities purchased 52.43% of the volume, and these were Gujarat, Maharashtra, Karnataka, Telangana and Dadra & Nagar Haveli (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 34.37% of the volume, and these were Tamil Nadu, Maharashtra, NTPC Stations (WR), Gujarat and Madhya Pradesh (Table-13). Top 5 regional entities overdrew 29.66% of the volume, and these were Rajasthan, Uttar Pradesh, NTPC Stations (NR), NTPC Stations (WR) 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., Diligent Power Pvt. Ltd., Infrastructure Leasing & Financial Services Limited, SEMBCORP and Punjab. Top 5 electricity purchasing regional entities were Maharashtra, Karnataka, Tamil Nadu, Jammu & Kashmir and Rajasthan.

IV: Congestion² on Inter-State Transmission Corridor for Day-Ahead Market on Power Exchanges

Power Exchanges use a price discovery mechanism in which the aggregate demand and supply are matched to arrive at an unconstrained market price and volume. This step assumes that there is no congestion in the inter-State transmission system between different regions. However, in reality, the system operator (NLDC) in coordination with RLDCs limits the flow (due to congestion) in the inter-State transmission system. In such a situation, power exchanges adopt a mechanism called “Market Splitting”³.

In the month of February, congestion occurred in both the power exchanges. The details of congestion are shown in Table-16. The volume of electricity that could not be

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.

cleared due to congestion and could not be transacted through power exchanges is the difference between unconstrained cleared volume (volume of electricity that would have been scheduled, had there been no congestion) and actual cleared volume.

During the month, the volume of electricity that could not be cleared in IEX and PXIL due to congestion was 1.24% and 13.69% of the unconstrained cleared volume respectively. In terms of time, congestion occurred was 78.13% in IEX and 10.42% in PXIL (Table-16).

V: Bilateral Contracts executed by Traders

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

(i) Duration of bilateral contracts: During March, 2017, a total of 121 bilateral contracts (excluding banking/swap contracts) have been executed by traders for the volume of 1500.65MUs. Figure-7 shows the percentage of contracts categorized according to the period of power supply. It can be observed from the figure that 55.4% of the bilateral contracts were executed for duration of up to one week, while 44.6% of the contracts were executed for duration of more than a week and up to one month and no contracts were executed for duration of more than one month.

During the month, 21 banking/swapping bilateral contracts were also executed for the volume of 122.93MUs.

(ii) Forward Curve based on price of bilateral contracts: A forward curve reflects present day's expectation of prices for a future period. The forward curve of electricity prices are based on sale prices of bilateral contracts executed by traders. The price of each contract for each day is taken into consideration while constructing the forward curve. On the basis of these prices, the weighted average price for each day is calculated using various sale prices of contracts for delivery on that particular day.

Figure-8 represents the forward curve of electricity sale prices for the period from 1st March, 2017 to 29th June, 2017 based on the bilateral contracts⁴ executed till March, 2017.

⁴Excluding Banking/Swapping contracts

Forward curves have been drawn for the contracts executed in February, 2017 and March, 2017 for the purpose of comparison. It is observed that from 1st March to 31st May 2017 forward contract prices are higher for the contracts executed in March, 2017 compared to the contract executed in February 2017, while the converse holds for the period from 16th June to 29th June 2017.

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 February, 2017 are shown in Table-20. The market clearing volume of solar RECs transacted on IEX and PXIL were 45613 and 3931 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 815357 and 228878 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 0.013 and 0.003 for IEX and PXIL respectively. For non-solar RECs, the ratio of buy bids to sell bids was 0.087 and 0.062 for IEX and PXIL respectively.

VII: Inferences:

- The percentage of short-term transactions of electricity to total electricity generation was 9.34%.
- Of the total short-term transactions of electricity, 47.72% was transacted through bilateral (through traders and term ahead contracts on power exchanges and directly by distribution companies), followed by 35.31% through power exchanges and 16.97% through DSM.
- Top 5 trading licensees had a share of 73.37% 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 0.1520, indicating moderate concentration of market power.
- The weighted average price of electricity transacted through trading licensees was ₹3.30/kWh. The weighted average prices of electricity transacted through IEX and PXIL were ₹2.64/kWh and ₹2.69/kWh respectively.
- The average price of electricity transacted through DSM was ₹1.73/kWh.
- Top 5 electricity selling regional entities were Jindal India Thermal Power Ltd., Diligent Power Pvt. Ltd., Infrastructure Leasing & Financial Services Limited, SEMBCORP and Punjab. Top 5 electricity purchasing regional entities were Maharashtra, Karnataka, Tamil Nadu, Jammu & Kashmir and Rajasthan.
- The volume of electricity that could not be cleared in IEX and PXIL due to congestion was 1.24% and 13.69% of the unconstrained cleared volume respectively. In terms of time, congestion occurred was 78.13% in IEX and 10.42% in PXIL.
- In March 2017, 55.4% of the bilateral contracts were executed for duration of up to one week, while 44.6% of the contracts were executed for duration of more than a week and up to one month and no contracts were executed for duration of more than one month.

- The forward curve of electricity sale prices for the period from 1st March, 2017 to 29th June, 2017 based on the bilateral contracts executed till March, 2017 shows that from 1st March to 31st May 2017, forward contract prices are higher for the contracts executed in March, 2017 compared to the contract executed in February 2017, while the converse holds for the period from 16th June to 29th June 2017.
- The market clearing volume of solar RECs transacted on IEX and PXIL were 45613 and 3931 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 815357 and 228878 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), FEBRUARY 2017				
Sr.No	Short-term transactions	Volume (MUs)	% to Volume of short-term transactions	% to Total Generation
1	Bilateral	3966.54	47.72	4.46
	(i) Through Traders and PXs	2733.08	32.88	3.07
	(ii) Direct	1233.46	14.84	1.39
2	Through Power Exchanges	2934.73	35.31	3.30
	(i) IEX	2926.89	35.21	3.29
	(ii) PXIL	7.84	0.09	0.009
3	Through DSM	1410.32	16.97	1.59
	Total	8311.59	-	9.34
	Total Generation	88972.84	-	-

Source: NLDC

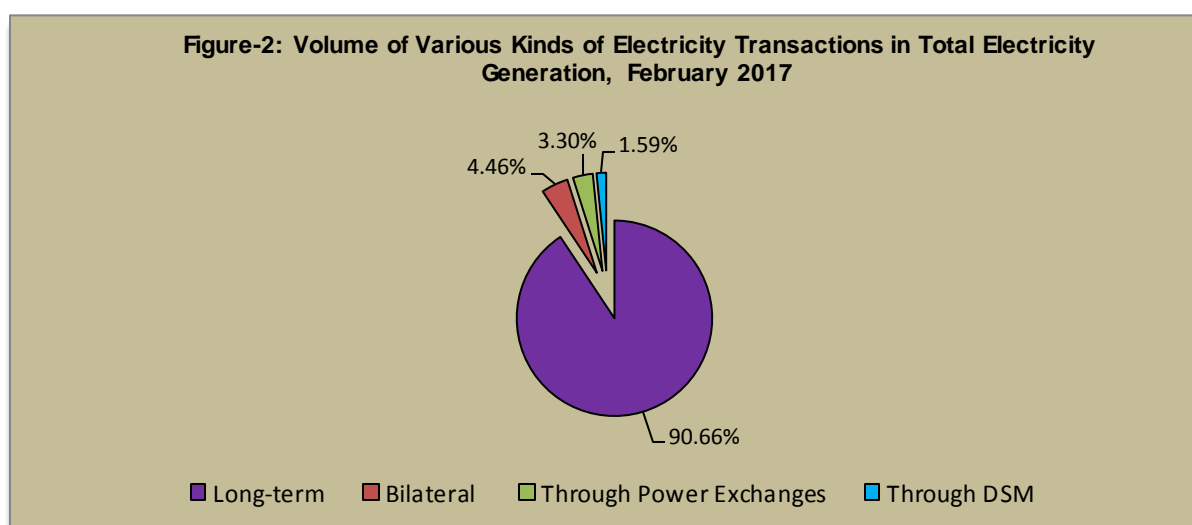
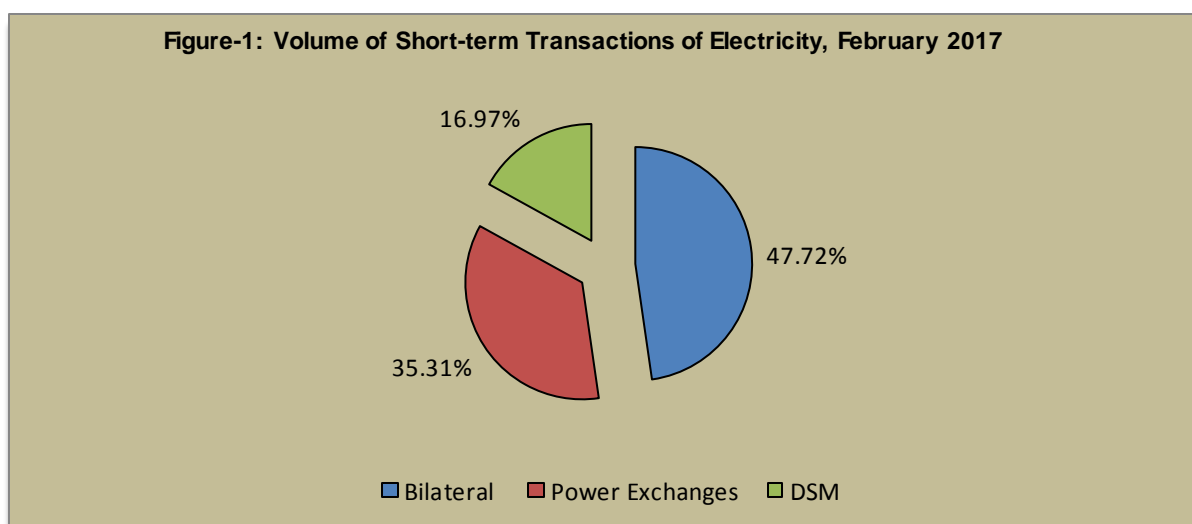


Figure-3: Volume of Short-term Transactions of Electricity, February 2017(Day-wise)

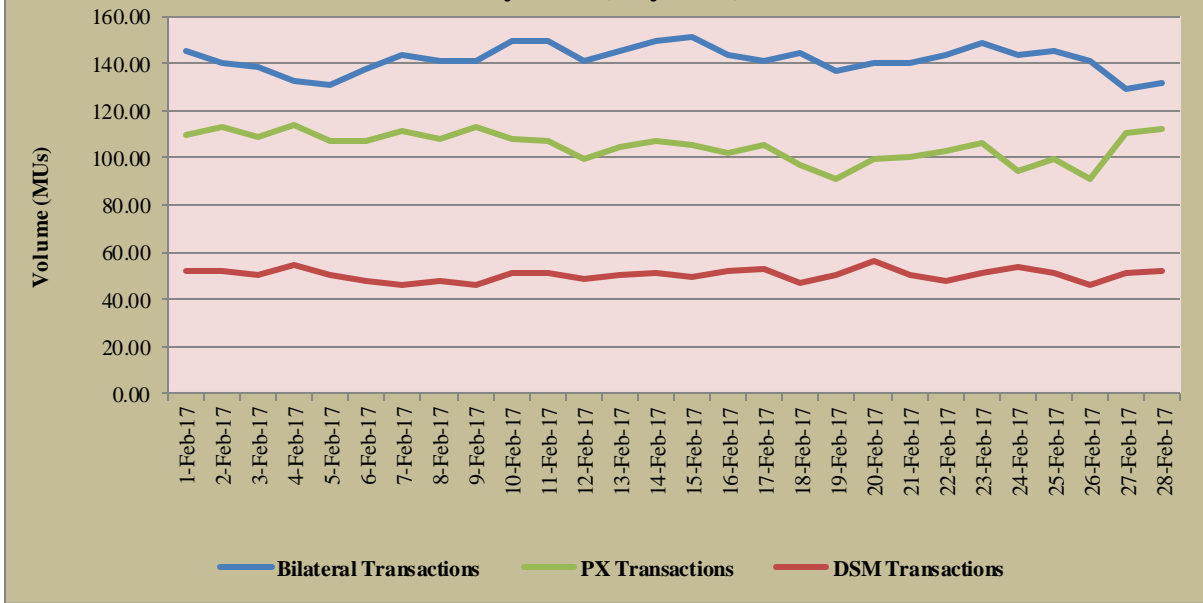


Table-2: PERCENTAGE SHARE OF ELECTRICITY TRANSACTED BY TRADING LICENSEES, FEBRUARY 2017			
Sr. No	Name of the Trading Licensee	% Share in total Volume transacted by Trading Licensees	Herfindahl-Hirschman Index
1	PTC India Ltd.	30.50	0.0930
2	Mittal Processors (P) Ltd.	14.60	0.0213
3	NTPC VidyutVyapar Nigam Ltd.	11.54	0.0133
4	Manikaran Power Ltd.	9.13	0.0083
5	Tata Power Trading Company (P) Ltd.	7.60	0.0058
6	GMR Energy Trading Ltd.	6.04	0.0036
7	Arunachal Pradesh Power Corporation (P) Ltd	5.18	0.0027
8	Adani Enterprises Ltd.	3.82	0.0015
9	JSW Power Trading Company Ltd	3.46	0.0012
10	Knowledge Infrastructure Systems (P) Ltd	2.18	0.0005
11	Jaiprakash Associates Ltd.	1.97	0.0004
12	National Energy Trading & Services Ltd.	1.47	0.0002
13	RPG Power Trading Company Ltd.	0.82	0.0001
14	Instinct Infra & Power Ltd.	0.41	0.0001
15	Customized Energy Solutions India (P) Ltd.	0.38	0.0000
16	Shree Cement Ltd.	0.37	0.0000
17	SN Power Markets Pvt. Ltd.	0.29	0.0000
18	My Home Power Private Ltd.	0.09	0.0000
19	Phillip Commodities India (P) Ltd.	0.07	0.0000
20	Gita Power & Infrastructure Private Limited	0.06	0.0000
21	Essar Electric Power Development Corp. Ltd.	0.03	0.0000
TOTAL		100.00%	0.1520
Top 5 trading licensees		73.37%	
<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>			

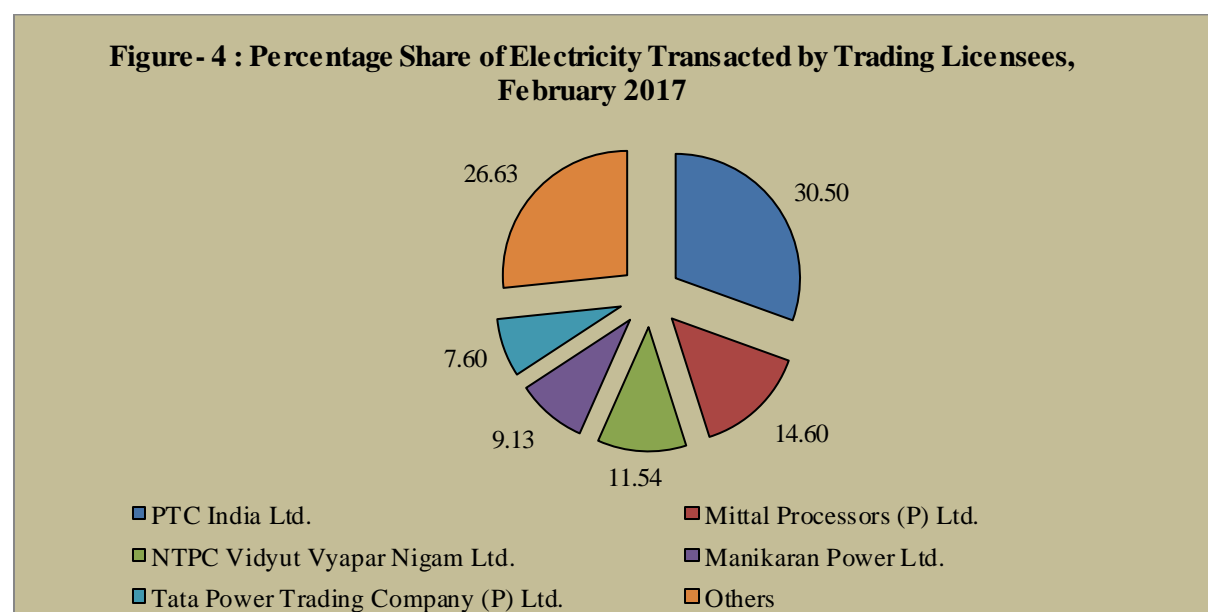


Table-3: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS, FEBRUARY 2017		
Sr.No	Item	Sale Price of Traders (₹/kWh)
1	Minimum	2.10
2	Maximum	4.70
3	Weighted Average	3.30

Source: Information submitted by trading licensees

Table-4: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS (TIME-WISE), FEBRUARY 2017		
Sr.No	Period of Trade	Sale Price of Traders (₹/kWh)
1	RTC	3.37
2	PEAK	4.11
3	OFF PEAK	2.74

Source: Information submitted by trading licensees

Table-5: PRICE OF ELECTRICITY TRANSACTED THROUGH POWER EXCHANGES, FEBRUARY 2017			
Sr.No	ACP	Price in IEX (₹/kWh)	Price in PXIL (₹/kWh)
1	Minimum	0.30	1.60
2	Maximum	15.06	3.30
3	Weighted Average	2.64	2.69

Source: Information submitted by IEX and PXIL

Table-6: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF IEX, FEBRUARY 2017			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	6.45	2.94
2	Day Ahead Contingency Contracts	7.31	2.92
3	Daily Contracts	-	-
4	Weekly Contracts	-	-
	Total	13.76	2.93

Source: IEX

Table-7: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF PXIL, FEBRUARY 2017			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	9.78	2.77
2	Day Ahead Contingency Contracts	-	-
3	Daily Contracts	-	-
4	Weekly Contracts	-	-
	Total	9.78	2.77

Source: PXIL

Table-8: PRICE OF ELECTRICITY TRANSACTED THROUGH DSM, FEBRUARY 2017		
Sr.No	Item	Price in All India Grid (₹/kWh)
1	Minimum	0.00
2	Maximum	5.11
3	Average	1.73

Source: NLDC

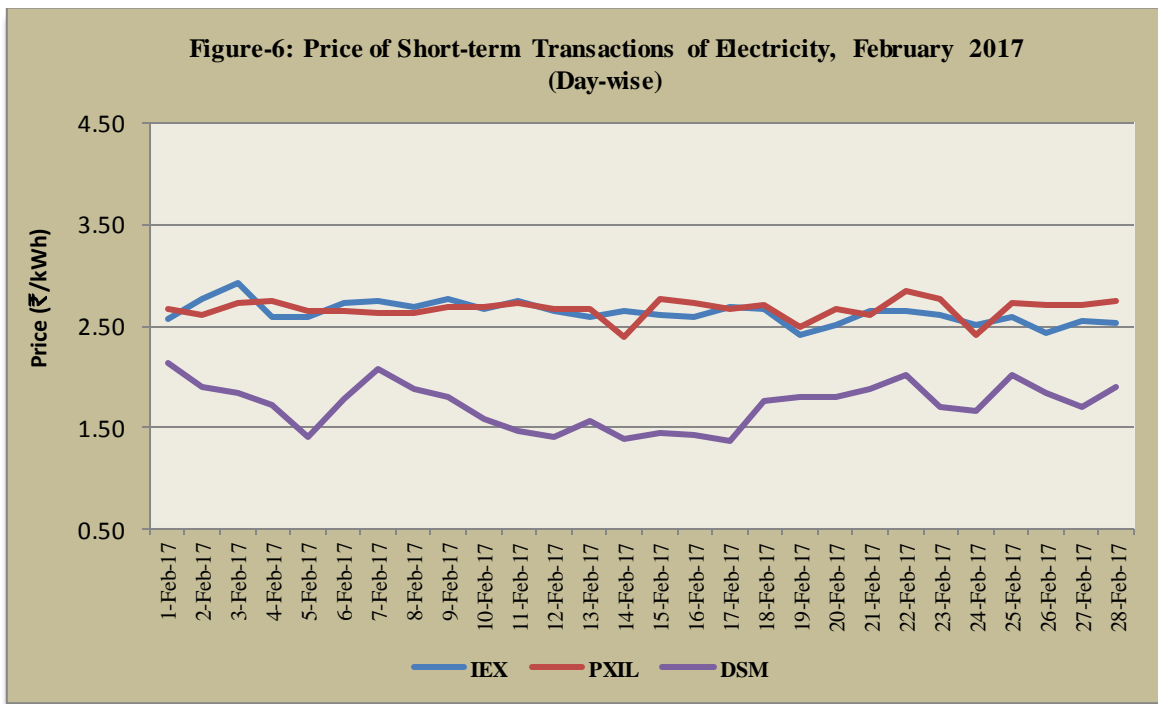
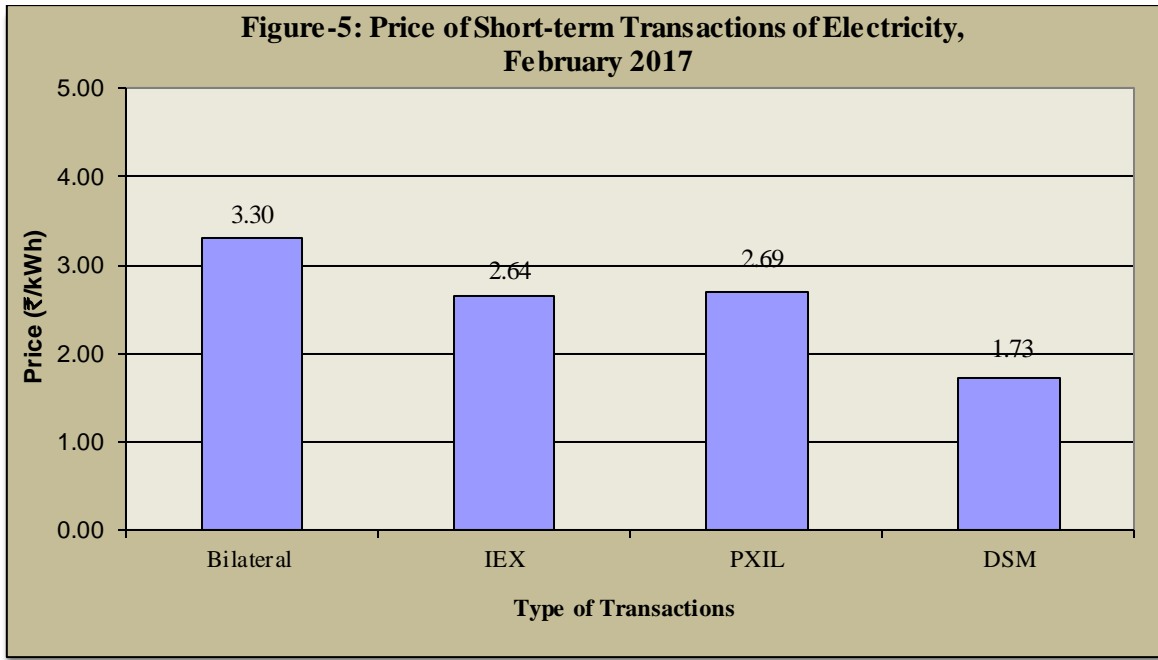


Table-9: VOLUME OF ELECTRICITY SOLD THROUGH BILATERAL, FEBRUARY 2017		
Name of the Entity	Volume of Sale (MUs)	% of Volume
HARYANA	379.01	9.68
ILF&S	357.01	9.11
SEMBCORP	326.59	8.34
UTTAR PRADESH	277.61	7.09
KORBA WEST POWER	274.58	7.01
PUNJAB	206.36	5.27
GUJARAT	199.20	5.09
WEST BENGAL	195.90	5.00
ESSAR POWER	187.79	4.79
DELHI	178.12	4.55
JAYPEE NIGRIE	169.47	4.33
JITPL	129.93	3.32
ODISHA	113.21	2.89
RAJASTHAN	110.77	2.83
SHREE CEMENT	106.14	2.71
BALCO	100.75	2.57
ADHUNIK POWER LTD	72.95	1.86
ANDHRA PRADESH	70.26	1.79
HIMACHAL PRADESH	58.76	1.50
DB POWER	46.99	1.20
GMR CHHATTISGARH	43.50	1.11
TAMIL NADU	32.81	0.84
NTPC STATIONS-ER	32.73	0.84
THERMAL POWERTECH	32.64	0.83
DOYANG HEP	30.09	0.77
KARNATAKA	21.49	0.55
MEENAKSHI	17.48	0.45
TELANGANA	16.78	0.43
JINDAL STAGE-II	16.04	0.41
DAGACHU	13.18	0.34
GMR KAMALANGA	12.52	0.32
J & K	10.53	0.27
MAITHON POWER LTD	8.94	0.23
MARUTI COAL	8.52	0.22
LANKO_AMK	8.32	0.21
MAHARASHTRA	8.13	0.21
ACBIL	7.48	0.19
JINDAL POWER	7.41	0.19
DVC	6.37	0.16
TRN ENERGY	5.35	0.14
MP	5.35	0.14
DHARIWAL POWER	4.82	0.12
SPECTRUM	2.56	0.07
CHHATTISGARH	1.41	0.04
SIKKIM	0.85	0.02
MEGHALAYA	0.51	0.01
COASTGEN	0.08	0.00
TOTAL	3917.24	100.00
Volume Sold by top 5 Regional Entities	1614.80	41.22

Table-10: VOLUME OF ELECTRICITY PURCHASED THROUGH BILATERAL, FEBRUARY 2017		
Name of the Entity	Volume of Purchase (MUs)	% of Volume
MAHARASHTRA	621.50	15.67
TAMIL NADU	528.59	13.33
HIMACHAL PRADESH	367.84	9.27
J & K	328.45	8.28
RAJASTHAN	239.66	6.04
BIHAR	209.00	5.27
ESSAR STEEL	192.16	4.84
TELANGANA	175.73	4.43
GUJARAT	165.46	4.17
KARNATAKA	149.31	3.76
BANGLADESH	144.52	3.64
JHARKHAND	137.93	3.48
CHHATTISGARH	117.77	2.97
NEPAL(NVVN)	98.28	2.48
UTTAR PRADESH	97.22	2.45
HARYANA	66.65	1.68
ODISHA	57.03	1.44
ASSAM	44.45	1.12
MP	38.94	0.98
MEGHALAYA	32.54	0.82
UTTARAKHAND	30.20	0.76
KERALA	28.53	0.72
ANDHRA PRADESH	27.68	0.70
GOA	25.76	0.65
MANIPUR	16.43	0.41
DELHI	11.06	0.28
DVC	8.94	0.23
WEST BENGAL	3.24	0.08
DAMAN AND DIU	1.68	0.04
TOTAL	3966.54	100.00
Volume Purchased by top 5 Regional Entities	2086.04	52.59

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

Name of the Entity	Volume of Sale (MUs)	% of Volume
DB POWER	317.43	10.82
JITPL	247.59	8.44
NLC	168.62	5.75
CHHATTISGARH	159.03	5.42
DELHI	143.98	4.91
MARUTI COAL	141.07	4.81
PUNJAB	121.86	4.15
MP	107.81	3.67
RKM POWER	91.20	3.11
JINDAL POWER	88.78	3.03
DVC	85.22	2.90
HIMACHAL PRADESH	73.27	2.50
KORBA WEST POWER	67.71	2.31
ASSAM	62.90	2.14
TELANGANA	57.04	1.94
SHREE CEMENT	54.12	1.84
KARCHAM WANGTOO	51.54	1.76
TRIPURA	51.35	1.75
MB POWER	51.17	1.74
UTTAR PRADESH	50.19	1.71
SPECTRUM	46.41	1.58
ODISHA	45.75	1.56
JAYPEE NIGRIE	45.08	1.54
ACBIL	43.91	1.50
GMR CHHATTISGARH	37.06	1.26
RAJASTHAN	37.05	1.26
GUJARAT	34.57	1.18
NTPC STATIONS-WR	32.05	1.09
EMCO	29.93	1.02
BALCO	29.48	1.00
HARYANA	28.37	0.97
ANDHRA PRADESH	28.01	0.95
MEENAKSHI	23.68	0.81
NSPCL	23.37	0.80
WEST BENGAL	23.33	0.80
TAMIL NADU	22.06	0.75
THERMAL POWERTECH	18.62	0.63
GOA	17.18	0.59
TEESTA STG3	17.05	0.58
SEMBCORP	16.83	0.57
DHARIWAL POWER	16.46	0.56
J & K	15.56	0.53
TRN ENERGY	13.22	0.45
JORETHANG	10.43	0.36
AD HYDRO	10.14	0.35
ADHUNIK POWER LTD	8.73	0.30
MAITHON POWER LTD	8.55	0.29
KARNATAKA	8.33	0.28
MANIPUR	7.55	0.26

SIKKIM	7.49	0.26
CHANDIGARH	7.26	0.25
MIZORAM	5.06	0.17
NJPC	4.20	0.14
DCPP	3.29	0.11
NTPC STATIONS-SR	3.28	0.11
NTPC STATIONS-ER	2.88	0.10
MAHARASHTRA	2.59	0.09
KERALA	2.34	0.08
CHUZACHEN HEP	1.85	0.06
UTTARAKHAND	1.75	0.06
GMR KAMALANGA	0.73	0.02
MALANA	0.62	0.02
JINDAL STAGE-II	0.44	0.02
MEGHALAYA	0.19	0.01
LANCO BUDHIL	0.07	0.00
ILF&S	0.04	0.00
NTPC STATIONS-NR	0.01	0.00
TOTAL	2934.72	100.00
Volume sold by top 5 Regional Entities	1036.65	35.32

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

Name of the Entity	Volume of Purchase (MUs)	% of Volume
GUJARAT	440.12	15.00
MAHARASHTRA	407.19	13.87
KARNATAKA	252.83	8.62
TELANGANA	221.08	7.53
DADRA & NAGAR HAVELI	217.61	7.41
HARYANA	205.16	6.99
RAJASTHAN	177.53	6.05
UTTARAKHAND	171.04	5.83
ANDHRA PRADESH	140.33	4.78
KERALA	89.35	3.04
DELHI	81.66	2.78
BIHAR	69.43	2.37
J & K	68.83	2.35
WEST BENGAL	57.27	1.95
ASSAM	56.84	1.94
ESSAR STEEL	54.41	1.85
MP	50.66	1.73
ODISHA	49.86	1.70
DAMAN AND DIU	37.57	1.28
HIMACHAL PRADESH	23.15	0.79
ARUNACHAL PRADESH	10.81	0.37
CHHATTISGARH	10.28	0.35
TAMIL NADU	9.63	0.33
MEGHALAYA	9.29	0.32
NAGALAND	5.51	0.19
DVC	4.95	0.17
MANIPUR	4.38	0.15
PONDICHERRY	2.88	0.10
CHANDIGARH	1.98	0.07
PUNJAB	1.72	0.06
GOA	1.40	0.05
TOTAL	2934.73	100.00
Volume purchased by top 5 Regional Entities	1538.82	52.43

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

Name of the Entity	Volume of Under drawal (MUs)	% of Volume
TAMIL NADU	109.28	8.61
MAHARASHTRA	95.95	7.56
NTPC STATIONS-WR	81.30	6.41
GUJARAT	75.92	5.98
MP	73.57	5.80
PUNJAB	58.10	4.58
NHPC STATIONS	56.25	4.43
DVC	55.74	4.39
HARYANA	47.78	3.77
NLC	47.28	3.73
UTTAR PRADESH	39.17	3.09
SASAN UMPP	35.22	2.78
TELANGANA	33.24	2.62
NTPC STATIONS-NR	29.97	2.36
ANDHRA PRADESH	27.78	2.19
CHHATTISGARH	26.94	2.12
BIHAR	20.49	1.61
RAJASTHAN	18.02	1.42
NTPC STATIONS-SR	17.97	1.42
KARNATAKA	17.79	1.40
ODISHA	17.48	1.38
NTPC STATIONS-ER	16.57	1.31
HIMACHAL PRADESH	16.20	1.28
ESSAR STEEL	16.11	1.27
DELHI	13.44	1.06
JITPL	12.28	0.97
LANKO_AMK	12.12	0.96
UTTARAKHAND	11.36	0.90
WEST BENGAL	9.32	0.73
NEEPCO STATIONS	9.05	0.71
MEGHALAYA	9.02	0.71
GOA	8.08	0.64
PONDICHERRY	7.71	0.61
DADRA & NAGAR HAVELI	7.55	0.60
DB POWER	7.32	0.58
TRIPURA	7.25	0.57
NSPCL	6.16	0.49
SIKKIM	5.80	0.46
RGPPL(DABHOL)	5.74	0.45
JAYPEE NIGRIE	5.58	0.44
NEPAL(NVVN)	4.89	0.39
NJPC	4.76	0.38
MANIPUR	4.56	0.36
MAITHON POWER LTD	4.50	0.35
ASSAM	4.48	0.35
THERMAL POWERTECH	4.25	0.34
JINDAL STAGE-II	4.14	0.33
KSK MAHANADI	4.06	0.32

JINDAL POWER	4.04	0.32
ACBIL	3.89	0.31
MB POWER	3.78	0.30
EMCO	3.24	0.26
JHARKHAND	3.22	0.25
SEMBCORP	2.94	0.23
DCPP	2.65	0.21
CHANDIGARH	2.60	0.21
BALCO	2.53	0.20
TEESTA HEP	2.37	0.19
CGPL	2.32	0.18
GMR KAMALANGA	2.28	0.18
SHREE CEMENT	2.02	0.16
TRN ENERGY	1.78	0.14
KARCHAM WANGTOO	1.74	0.14
ADHUNIK POWER LTD	1.71	0.13
BANGLADESH	1.69	0.13
ILF&S	1.50	0.12
KORBA WEST POWER	1.38	0.11
JORETHANG	1.37	0.11
KERALA	1.31	0.10
COASTGEN	1.22	0.10
GMR CHHATTISGARH	1.09	0.09
VANDANA VIDYUT	1.04	0.08
URI-2	1.01	0.08
ESSAR POWER	0.95	0.07
AD HYDRO	0.85	0.07
RANGIT HEP	0.85	0.07
NAGALAND	0.84	0.07
DAMAN AND DIU	0.76	0.06
MEENAKSHI	0.62	0.05
ARUNACHAL PRADESH	0.41	0.03
MIZORAM	0.33	0.03
DHARIWAL POWER	0.32	0.02
DAGACHU	0.31	0.02
CHUZACHEN HEP	0.10	0.01
ADANI HVDC	0.08	0.01
MALANA	0.08	0.01
LANCO BUDHIL	0.02	0.00
TOTAL	1268.78	100.00
Volume Exported by top 5 Regional Entities	436.03	34.37

Table-14: VOLUME OF ELECTRICITY OVER DRAWAL (IMPORTED) THROUGH DSM, FEBRUARY 2017		
Name of the Entity	Volume of Over drawal (MUs)	% of Volume
RAJASTHAN	109.26	7.61
UTTAR PRADESH	97.19	6.77
NTPC STATIONS-NR	94.25	6.56
NTPC STATIONS-WR	64.04	4.46
KERALA	61.16	4.26
NTPC STATIONS-ER	54.48	3.79
BIHAR	47.38	3.30
KARNATAKA	46.58	3.24
JHARKHAND	46.22	3.22
PUNJAB	44.17	3.08
ANDHRA PRADESH	42.38	2.95
UTTARAKHAND	39.74	2.77
HARYANA	38.29	2.67
GUJARAT	37.04	2.58
MAHARASHTRA	36.83	2.57
WEST BENGAL	36.72	2.56
CGPL	34.51	2.40
BALCO	32.09	2.24
CHHATTISGARH	31.39	2.19
ASSAM	29.54	2.06
ESSAR STEEL	28.27	1.97
TELANGANA	27.79	1.94
NTPC STATIONS-SR	27.78	1.94
ODISHA	27.08	1.89
TAMIL NADU	25.51	1.78
GOA	20.28	1.41
MP	20.03	1.40
DELHI	19.80	1.38
HIMACHAL PRADESH	18.64	1.30
DVC	11.41	0.79
ARUNACHAL PRADESH	9.17	0.64
NLC	8.42	0.59
DAMAN AND DIU	7.94	0.55
CHANDIGARH	7.31	0.51
KORBA WEST POWER	7.31	0.51
NHPC STATIONS	6.60	0.46
NAGALAND	6.30	0.44
MIZORAM	6.25	0.44
ILF&S	5.94	0.41
BANGLADESH	5.56	0.39
GMR KAMALANGA	5.49	0.38
NSPCL	5.18	0.36
JITPL	5.00	0.35

NJPC	4.93	0.34
ACBIL	4.79	0.33
THERMAL POWERTECH	4.26	0.30
JINDAL STAGE-II	4.26	0.30
GMR CHHATTISGARH	4.25	0.30
MEENAKSHI	4.14	0.29
KARCHAM WANGTOO	3.87	0.27
JAYPEE NIGRIE	3.74	0.26
EMCO	3.53	0.25
MEGHALAYA	3.51	0.24
TRIPURA	3.45	0.24
MAITHON POWER LTD	3.36	0.23
SHREE CEMENT	3.35	0.23
DADRA & NAGAR HAVELI	3.32	0.23
DB POWER	3.31	0.23
COASTGEN	3.29	0.23
JINDAL POWER	3.17	0.22
MB POWER	2.95	0.21
PONDICHERRY	2.72	0.19
ADHUNIK POWER LTD	2.41	0.17
JORETHANG	2.33	0.16
MANIPUR	2.31	0.16
NTPC STATIONS-NER	2.29	0.16
ESSAR POWER	1.98	0.14
TRN ENERGY	1.95	0.14
DCPP	1.67	0.12
SEMBCORP	1.57	0.11
SASAN UMPP	1.42	0.10
JHABUA POWER_MP	1.38	0.10
DAGACHU	1.22	0.08
SIKKIM	1.08	0.08
DGEN MEGA POWER	1.05	0.07
RGPPL(DABHOL)	0.79	0.06
URI-2	0.78	0.05
SIMHAPURI	0.71	0.05
LANKO KONDAPALLI	0.67	0.05
LANCO BUDHIL	0.57	0.04
KSK MAHANADI	0.55	0.04
RANGIT HEP	0.47	0.03
AD HYDRO	0.47	0.03
DHARIWAL POWER	0.45	0.03
ONGC PALATANA	0.40	0.03
TOTAL	1435.73	100.00
Volume Imported by top 5 Regional Entities	425.90	29.66

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

Sr.No.	Name of the Entity	Total volume of net short-term transactions of electricity*
1	MAHARASHTRA	958.85
2	KARNATAKA	401.11
3	TAMIL NADU	399.57
4	J & K	371.19
5	RAJASTHAN	360.61
6	GUJARAT	332.93
7	TELANGANA	317.54
8	BIHAR	305.33
9	HIMACHAL PRADESH	261.41
10	ESSAR STEEL	258.72
11	UTTARAKHAND	227.87
12	DADRA & NAGAR HAVELI	213.37
13	JHARKHAND	180.93
14	KERALA	175.38
15	BANGLADESH	148.38
16	NEPAL(NVFN)	93.60
17	ANDHRA PRADESH	84.35
18	NTPC STATIONS-NR	64.27
19	ASSAM	63.45
20	DAMAN AND DIU	46.43
21	MEGHALAYA	35.62
22	CGPL(COASTAL GUJARAT POWER LTD)	32.19
23	GOA	22.18
24	ARUNACHAL PRADESH	19.57
25	MANIPUR	11.02
26	NAGALAND	10.97
27	NTPC STATIONS-SR	6.53
28	NTPC STATIONS-ER	2.30
29	NTPC STATIONS-NER	2.29
30	COASTGEN	2.00
31	JHABUA POWER_MP	1.38
32	CHUZACHEN HEP	-1.84
33	PONDICHERRY	-2.11
34	TEESTA HEP	-2.31
35	KSK MAHANADI	-3.51
36	NJPC	-4.03
37	DCPP	-4.26
38	RGPPL(DABHOL)	-4.95
39	NEEPCO STATIONS	-9.05
40	JORETHANG	-9.46
41	GMR KAMALANGA	-10.04
42	AD HYDRO	-10.52
43	DAGACHU	-12.27
44	SIKKIM	-13.07
45	JINDAL STAGE-II	-16.35

46	TEESTA STG3	-17.05
47	TRN ENERGY	-18.41
48	MAITHON POWER LTD	-18.63
49	LANKO_AMK	-20.36
50	DHARIWAL POWER	-21.14
51	NSPCL	-24.35
52	CHHATTISGARH	-27.95
53	EMCO	-29.64
54	DOYANG HEP	-30.09
55	SASAN UMPP	-33.80
56	MEENAKSHI	-37.63
57	ODISHA	-42.47
58	SPECTRUM	-48.97
59	NTPC STATIONS-WR	-49.31
60	KARCHAM WANGTOO	-49.42
61	NHPC STATIONS	-49.65
62	ACBIL	-50.49
63	THERMAL POWERTECH	-51.25
64	MB POWER	-52.00
65	TRIPURA	-55.15
66	MP	-77.10
67	GMR CHHATTISGARH	-77.40
68	ADHUNIK POWER LTD	-80.98
69	RKM POWER	-91.20
70	JINDAL POWER	-97.06
71	BALCO	-100.67
72	DVC	-122.02
73	WEST BENGAL	-131.33
74	HARYANA	-145.08
75	MARUTI COAL	-149.60
76	SHREE CEMENT	-158.93
77	UTTAR PRADESH	-172.56
78	ESSAR POWER	-186.76
79	NLC	-207.49
80	JAYPEE NIGRIE	-216.39
81	DELHI	-223.03
82	KORBA WEST POWER	-336.36
83	PUNJAB	-340.42
84	SEMBCORP	-344.79
85	ILF&S	-352.61
86	DB POWER	-368.42
87	JITPL	-384.79

* 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, FEBUARY 2017			
	Details of Congestion	IEX	PXIL
A	Unconstrained Cleared Volume* (MUs)	2963.72	9.08
B	Actual Cleared Volume and hence scheduled (MUs)	2926.89	7.84
C	Volume of electricity that could not be cleared and hence not scheduled because of congestion (MUs) (A-B)	36.83	1.24
D	Volume of electricity that could not be cleared as % to Unconstrained Cleared Volume	1.24%	13.69%
E	Percentage of the time congestion occurred during the month (Number of hours congestion occurred/Total number of hours in the month)	78.13%	10.42%
F	Congestion occurrence (%) time block wise		
	0.00 - 6.00 hours	13.33%	0.00%
	6.00 - 12.00 hours	29.90%	5.71%
	12.00 - 18.00 hours	27.57%	14.29%
	18.00 - 24.00 hours	29.19%	80.00%
<i>* This power would have been scheduled had there been no congestion.</i>			
<i>Source: IEX & PXIL & NLDC</i>			

Table-17: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY IN INDIA (DAY-WISE) (MUs), FEBRUARY 2017

Date	Bilateral		Power Exchange (Area Clearing Volume# of Day Ahead Market)		Deviation Settlement (Over Drawl+Under Generation)	Total Electricity Generation (MU) as given at CEA Website*
	Through Traders and PXs**	Direct	IEX	PXIL		
1-Feb-17	102.79	42.58	109.88	0.20	51.91	3127.74
2-Feb-17	101.60	38.45	112.57	0.50	51.94	3132.88
3-Feb-17	101.30	37.00	108.17	0.49	50.14	3131.85
4-Feb-17	95.01	37.61	113.44	0.23	54.62	3063.11
5-Feb-17	92.05	39.10	106.77	0.24	50.14	2975.39
6-Feb-17	97.65	40.04	106.94	0.39	47.51	3093.79
7-Feb-17	103.37	40.20	110.71	0.31	46.48	3183.02
8-Feb-17	102.97	37.94	107.41	0.28	47.42	3204.39
9-Feb-17	99.12	41.53	112.85	0.28	46.30	3177.69
10-Feb-17	102.62	46.85	107.33	0.29	50.79	3198.28
11-Feb-17	103.07	46.86	106.45	0.34	51.32	3151.55
12-Feb-17	95.02	45.95	99.05	0.26	48.47	3031.11
13-Feb-17	99.13	46.50	104.53	0.22	50.24	3062.57
14-Feb-17	101.03	48.25	107.42	0.04	51.42	3136.60
15-Feb-17	102.84	48.30	105.08	0.25	49.84	3171.10
16-Feb-17	96.01	47.46	101.75	0.16	51.71	3189.89
17-Feb-17	95.32	45.79	105.42	0.13	52.61	3150.11
18-Feb-17	95.65	48.72	96.95	0.13	47.12	3207.65
19-Feb-17	94.44	41.99	90.95	0.04	50.60	3132.29
20-Feb-17	95.28	45.03	99.58	0.10	55.91	3198.30
21-Feb-17	95.85	43.96	99.70	0.42	50.31	3243.30
22-Feb-17	97.71	46.13	102.22	0.47	47.79	3299.70
23-Feb-17	102.22	46.70	105.64	0.40	51.19	3307.93
24-Feb-17	98.14	45.55	94.51	0.04	53.79	3279.00
25-Feb-17	99.60	45.51	99.20	0.17	51.48	3277.10
26-Feb-17	94.46	46.95	90.91	0.14	46.02	3239.70
27-Feb-17	83.43	45.97	109.83	1.04	51.03	3290.20
28-Feb-17	85.42	46.55	111.65	0.30	52.22	3316.60
Total	2733.08	1233.46	2926.89	7.84	1410.32	88972.84

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), FEBRUARY, 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-Feb-17	1.80	6.50	2.57	1.88	2.95	2.67	0.00	4.91	2.14
2-Feb-17	1.80	6.50	2.77	1.88	2.71	2.61	0.00	3.45	1.90
3-Feb-17	1.75	9.89	2.92	1.95	2.81	2.73	0.00	3.45	1.83
4-Feb-17	1.81	12.84	2.59	1.95	2.81	2.74	0.00	3.45	1.73
5-Feb-17	1.80	9.91	2.60	1.88	2.97	2.65	0.00	3.45	1.40
6-Feb-17	1.75	15.06	2.73	1.78	2.86	2.65	0.00	3.45	1.79
7-Feb-17	1.90	7.70	2.75	1.84	2.95	2.63	0.00	3.45	2.08
8-Feb-17	1.79	6.50	2.69	1.80	3.30	2.62	0.00	4.91	1.87
9-Feb-17	1.89	10.48	2.77	1.82	3.30	2.69	0.00	3.24	1.79
10-Feb-17	1.87	6.00	2.68	1.82	3.23	2.69	0.00	3.24	1.58
11-Feb-17	1.89	6.50	2.74	1.82	2.90	2.72	0.00	3.45	1.46
12-Feb-17	1.10	7.11	2.66	1.82	2.71	2.66	0.00	3.45	1.40
13-Feb-17	0.50	4.00	2.59	1.90	2.71	2.66	0.00	3.45	1.58
14-Feb-17	0.30	7.00	2.66	1.90	2.70	2.40	0.00	3.24	1.40
15-Feb-17	1.75	7.11	2.61	1.90	2.85	2.76	0.00	3.24	1.45
16-Feb-17	0.95	7.80	2.58	1.90	2.85	2.72	0.00	3.45	1.43
17-Feb-17	1.56	6.50	2.69	1.90	2.80	2.66	0.00	2.82	1.38
18-Feb-17	1.96	6.20	2.67	1.80	2.97	2.70	0.00	3.24	1.76
19-Feb-17	1.90	6.00	2.42	2.50	2.50	2.50	0.00	3.45	1.80
20-Feb-17	1.55	3.51	2.52	1.80	2.97	2.67	0.00	3.45	1.80
21-Feb-17	1.96	5.00	2.66	1.85	2.80	2.60	0.00	3.45	1.87
22-Feb-17	1.87	4.55	2.65	1.60	2.89	2.85	0.00	5.11	2.02
23-Feb-17	1.00	7.11	2.61	1.80	2.80	2.77	0.00	3.45	1.70
24-Feb-17	0.50	4.95	2.51	1.80	2.80	2.42	0.00	3.45	1.67
25-Feb-17	1.81	8.10	2.60	2.00	2.85	2.72	0.00	3.24	2.02
26-Feb-17	1.20	4.70	2.44	1.95	2.85	2.71	0.00	3.45	1.83
27-Feb-17	1.82	5.50	2.55	1.65	2.81	2.70	0.00	3.45	1.70
28-Feb-17	1.96	3.80	2.54	1.72	2.80	2.75	0.00	3.45	1.91
	0.30#	15.06#	2.64	1.60#	3.30#	2.69	0.00#	5.11#	1.73

Source: Data on price of PX transactions from IEX and PXIL and data on DSM Price from NLDC.

* Weighted average price computed based on Area Clearing Volume (ACV) and Area Clearing Price (ACP) for each hour of the day. Here, ACV and ACP represent the scheduled volume and weighted average price of all the bid areas of power exchanges.

** Simple average price of DSM of 96 time blocks of 15 minutes each in a day. DSM price includes Ceiling DSM Rate +40% additional DSM charge.

Maximum/Minimum in the month

**Table-19: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (REGIONAL ENTITY*-WISE) (MUs),
FEBRUARY 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 Drawl)	Export (Under Drawl)	Net**	
Punjab	206.36	0.00	-206.36	121.86	1.72	-120.14	44.17	58.10	-13.92	-340.42
Haryana	379.01	66.65	-312.37	28.37	205.16	176.79	38.29	47.78	-9.50	-145.08
Rajasthan	110.77	239.66	128.89	37.05	177.53	140.48	109.26	18.02	91.24	360.61
Delhi	178.12	11.06	-167.06	143.98	81.66	-62.32	19.80	13.44	6.35	-223.03
Uttar Pradesh	277.61	97.22	-180.38	50.19	0.00	-50.19	97.19	39.17	58.02	-172.56
Uttarakhand	0.00	30.20	30.20	1.75	171.04	169.29	39.74	11.36	28.38	227.87
Himachal Pr	58.76	367.84	309.08	73.27	23.15	-50.12	18.64	16.20	2.45	261.41
J & K	10.53	328.45	317.92	15.56	68.83	53.27	0.00	0.00	0.00	371.19
MP	5.35	38.94	33.60	107.81	50.66	-57.15	20.03	73.57	-53.54	-77.10
Maharashtra	8.13	621.50	613.38	2.59	407.19	404.60	36.83	95.95	-59.13	958.85
Gujarat	199.20	165.46	-33.74	34.57	440.12	405.55	37.04	75.92	-38.88	332.93
Chhattisgarh	1.41	117.77	116.35	159.03	10.28	-148.75	31.39	26.94	4.45	-27.95
GOA	0.00	25.76	25.76	17.18	1.40	-15.78	19.09	4.07	15.03	0.41
Daman and Diu	0.00	1.68	1.68	0.00	37.57	37.57	7.94	0.76	7.18	46.43
Dadra & Nagar Haveli	0.00	0.00	0.00	0.00	217.61	217.61	3.32	7.55	-4.24	213.37
Andhra Pradesh	70.26	27.68	-42.58	28.01	140.33	112.32	42.38	27.78	14.61	84.35
Karnataka	21.49	149.31	127.82	8.33	252.83	244.50	46.58	17.79	28.79	401.11
Kerala	0.00	28.53	28.53	2.34	89.35	87.00	61.16	1.31	59.85	175.38
Tamil Nadu	32.81	528.59	495.78	22.06	9.63	-12.43	25.51	109.28	-83.77	399.57
Telangana	16.78	175.73	158.95	57.04	221.08	164.04	27.79	33.24	-5.45	317.54
West Bengal	195.90	3.24	-192.66	23.33	57.27	33.93	36.72	9.32	27.40	-131.33
Odisha	113.21	57.03	-56.18	45.75	49.86	4.11	27.08	17.48	9.60	-42.47
Bihar	0.00	209.00	209.00	0.00	69.43	69.43	47.38	20.49	26.90	305.33
Jharkhand	0.00	137.93	137.93	0.00	0.00	0.00	46.22	3.22	43.00	180.93
Sikkim	0.85	0.00	-0.85	7.49	0.00	-7.49	1.08	5.80	-4.73	-13.07
DVC	6.37	8.94	2.57	85.22	4.95	-80.27	11.41	55.74	-44.33	-122.02
Arunachal Pradesh	0.00	0.00	0.00	0.00	10.81	10.81	9.17	0.41	8.76	19.57
Assam	0.00	44.45	44.45	62.90	56.84	-6.05	29.54	4.48	25.06	63.45
Manipur	0.00	16.43	16.43	7.55	4.38	-3.17	2.31	4.56	-2.24	11.02
Meghalaya	0.51	32.54	32.03	0.19	9.29	9.10	3.51	9.02	-5.51	35.62
Nagaland	0.00	0.00	0.00	0.00	5.51	5.51	6.30	0.84	5.46	10.97
Tripura	0.00	0.00	0.00	51.35	0.00	-51.35	3.45	7.25	-3.79	-55.15
NTPC Stations- NR	0.00	0.00	0.00	0.01	0.00	-0.01	94.25	29.97	64.28	64.27
NHPC Stations	0.00	0.00	0.00	0.00	0.00	0.00	6.60	56.25	-49.65	-49.65
NJPC	0.00	0.00	0.00	4.20	0.00	-4.20	4.93	4.76	0.17	-4.03
AD HYDRO	0.00	0.00	0.00	10.14	0.00	-10.14	0.47	0.85	-0.38	-10.52
KARCHAM WANGTO	0.00	0.00	0.00	51.54	0.00	-51.54	3.87	1.74	2.13	-49.42
SHREE CEMENT	106.14	0.00	-106.14	54.12	0.00	-54.12	3.35	2.02	1.33	-158.93
NTPC Stations - WR	0.00	0.00	0.00	32.05	0.00	-32.05	64.04	81.30	-17.26	-49.31
JINDAL POWER	7.41	0.00	-7.41	88.78	0.00	-88.78	3.17	4.04	-0.87	-97.06

LANKO_AMK	8.32	0.00	-8.32	0.00	0.00	0.00	0.07	12.12	-12.05	-20.36
NSPCL	0.00	0.00	0.00	23.37	0.00	-23.37	5.18	6.16	-0.98	-24.35
ACBIL	7.48	0.00	-7.48	43.91	0.00	-43.91	4.79	3.89	0.90	-50.49
BALCO	100.75	0.00	-100.75	29.48	0.00	-29.48	32.09	2.53	29.56	-100.67
CGPL	0.00	0.00	0.00	0.00	0.00	0.00	34.51	2.32	32.19	32.19
EMCO	0.00	0.00	0.00	29.93	0.00	-29.93	3.53	3.24	0.28	-29.64
ESSAR STEEL	0.00	192.16	192.16	0.00	54.41	54.41	28.27	16.11	12.16	258.72
KSK MAHANADI	0.00	0.00	0.00	0.00	0.00	0.00	0.55	4.06	-3.51	-3.51
ESSAR POWER	187.79	0.00	-187.79	0.00	0.00	0.00	1.98	0.95	1.03	-186.76
JINDAL STAGE-II	16.04	0.00	-16.04	0.44	0.00	-0.44	4.26	4.14	0.12	-16.35
DB POWER	46.99	0.00	-46.99	317.43	0.00	-317.43	3.31	7.32	-4.00	-368.42
DHARIWAL POWER	4.82	0.00	-4.82	16.46	0.00	-16.46	0.45	0.32	0.13	-21.14
JAYPEE NIGRIE	169.47	0.00	-169.47	45.08	0.00	-45.08	3.74	5.58	-1.84	-216.39
GMR Chhattisgarh	43.50	0.00	-43.50	37.06	0.00	-37.06	4.25	1.09	3.16	-77.40
KORBA WEST	274.58	0.00	-274.58	67.71	0.00	-67.71	7.31	1.38	5.92	-336.36
MB Power	0.00	0.00	0.00	51.17	0.00	-51.17	2.95	3.78	-0.83	-52.00
MARUTI COAL	8.52	0.00	-8.52	141.07	0.00	-141.07	0.00	0.00	0.00	-149.60
SPECTRUM	2.56	0.00	-2.56	46.41	0.00	-46.41	0.00	0.00	0.00	-48.97
JhabuaPower_MP	0.00	0.00	0.00	0.00	0.00	0.00	1.38	0.00	1.38	1.38
SASAN UMPP	0.00	0.00	0.00	0.00	0.00	0.00	1.42	35.22	-33.80	-33.80
TRN ENERGY	5.35	0.00	-5.35	13.22	0.00	-13.22	1.95	1.78	0.17	-18.41
RKM Power	0.00	0.00	0.00	91.20	0.00	-91.20	0.00	0.00	0.00	-91.20
NTPC Stations - SR	0.00	0.00	0.00	3.28	0.00	-3.28	27.78	17.97	9.82	6.53
Meenakshi	17.48	0.00	-17.48	23.68	0.00	-23.68	4.14	0.62	3.52	-37.63
THERMAL POWER	32.64	0.00	-32.64	18.62	0.00	-18.62	4.26	4.25	0.01	-51.25
ILF&S	357.01	0.00	-357.01	0.04	0.00	-0.04	5.94	1.50	4.44	-352.61
NLC	0.00	0.00	0.00	168.62	0.00	-168.62	8.42	47.28	-38.87	-207.49
SEMBCORP	326.59	0.00	-326.59	16.83	0.00	-16.83	1.57	2.94	-1.38	-344.79
NTPC Stations - ER	32.73	0.00	-32.73	2.88	0.00	-2.88	54.48	16.57	37.91	2.30
MAITHON POWER	8.94	0.00	-8.94	8.55	0.00	-8.55	3.36	4.50	-1.14	-18.63
ADHUNIK POWER	72.95	0.00	-72.95	8.73	0.00	-8.73	2.41	1.71	0.69	-80.98
RANGIT HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.85	-0.38	-0.38
GMR KAMALANGA	12.52	0.00	-12.52	0.73	0.00	-0.73	5.49	2.28	3.21	-10.04
JITPL	129.93	0.00	-129.93	247.59	0.00	-247.59	5.00	12.28	-7.28	-384.79
Dagachu	13.18	0.00	-13.18	0.00	0.00	0.00	1.22	0.31	0.90	-12.27
Jorethang	0.00	0.00	0.00	10.43	0.00	-10.43	2.33	1.37	0.96	-9.46
NEPAL(NVWN)	0.00	98.28	98.28	0.00	0.00	0.00	0.20	4.89	-4.69	93.60
Bangladesh	0.00	144.52	144.52	0.00	0.00	0.00	5.56	1.69	3.86	148.38
TEESTA STG3	0.00	0.00	0.00	17.05	0.00	-17.05	0.00	0.00	0.00	-17.05
NEEPCO Stations	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.05	-9.05	-9.05
DOYANG HEP	30.09	0.00	-30.09	0.00	0.00	0.00	0.00	0.00	0.00	-30.09
TOTAL	3917.24	3966.54	49.30	2934.72	2934.73	0.01	1435.73	1268.78	166.95	191.67
Source: NLDC										
* in case of a state, the entities which are "selling" also include generators connected to state grid and the entities which are "buying" also include open access consumers.										
** (-) indicates sale and (+) indicates purchase,										
*** Total net includes net of transactions through bilateral, power exchange and DSM										

Figure 7: Bilateral Contracts executed by Traders in March, 2017

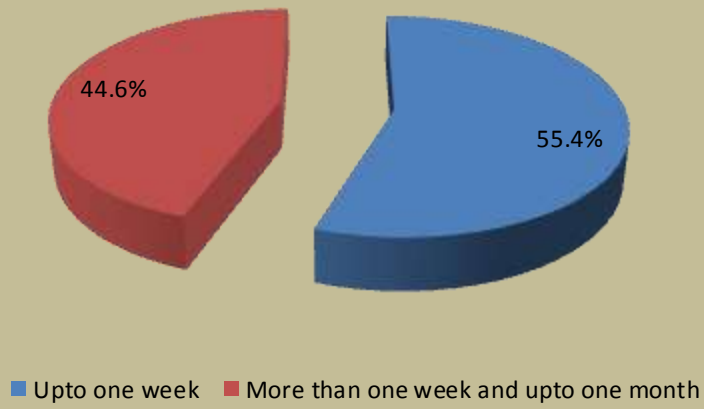


Figure-8: Forward Curve based on Prices of Bilateral Contracts

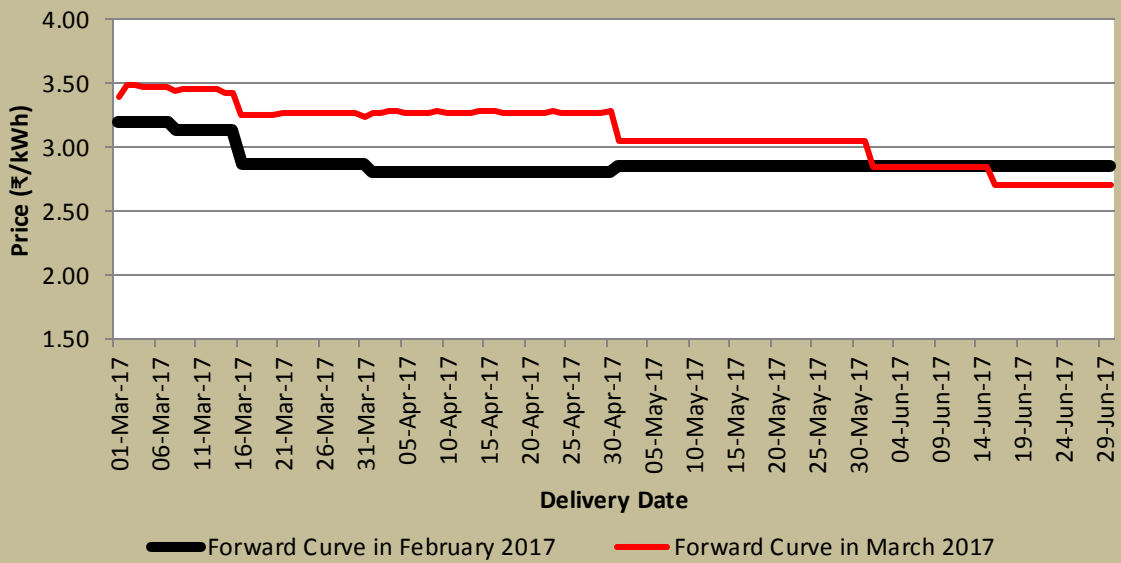


Table-20 : VOLUME AND PRICE OF RENEWABLE ENERGY CERTIFICATES (RECs) TRANSACTED THROUGH POWER EXCHANGES, FEBRUARY 2017					
Sr.No.	Details of REC Transactions	IEX		PXIL	
		Solar	Non-Solar	Solar	Non Solar
A	Volume of Buy Bid	45613	815357	3931	228878
B	Volume of Sell Bid	3609894	9341462	1132512	3686689
C	Ratio of Buy Bid to Sell Bid Volume	0.013	0.087	0.003	0.062
D	Market Clearing Volume (MWh)	45613	815357	3931	228878
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>