

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

November, 2015



Economics Division  
Central Electricity Regulatory Commission  
Ground Floor, Chanderlok Building



# Contents

S. No.	Contents	Page No
	Contents	2
	List of Tables and Figures	3
	Abbreviations	4
	Introduction	6
I	Volume of Short-term Transactions of Electricity	6
II	Price of Short-term Transactions of Electricity	7
(i)	<i>Price of electricity transacted through Traders</i>	7
(ii)	<i>Price of electricity transacted through Power Exchanges</i>	8
(iii)	<i>Price of electricity transacted through DSM</i>	8
III	Volume of Short-term Transactions of Electricity (Regional Entity-wise)	8
IV	Congestion on Inter-State Transmission Corridor for Day-Ahead Market on Power Exchanges	9
V	Bilateral Contracts executed by Traders	10
(i)	<i>Duration of bilateral contracts</i>	10
(ii)	<i>Forward Curve based on Prices of bilateral contracts</i>	10
VI	Volume and Price of Renewable Energy Certificates (RECs)	11
VII	Inferences	12

## List of Tables and Figures

S.No.	List of Tables and Figures	Page No.
<b>I</b>	<b>List of Tables</b>	
Table-1	Volume of Short-term Transactions of Electricity in India	14
Table-2	Percentage Share of Electricity Transacted by Trading Licensees	16
Table-3	Price of Electricity Transacted through Traders	17
Table-4	Price of Electricity Transacted through Traders (Time-wise)	17
Table-5	Price of Electricity Transacted through Power Exchanges	17
Table-6	Volume and Price of Electricity in Term Ahead Market of IEX	17
Table-7	Volume and Price of Electricity in Term Ahead Market of PXIL	17
Table-8	Price of Electricity Transacted through DSM	17
Table-9	Volume of Electricity Sold through Bilateral	19
Table-10	Volume of Electricity Purchased through Bilateral	20
Table-11	Volume of Electricity Sold through Power Exchanges	21
Table-12	Volume of Electricity Purchased through Power Exchanges	22
Table-13	Volume of Electricity Under drawal through DSM	23
Table-14	Volume of Electricity Over drawal through DSM	25
Table-15	Total Volume of Net Short-term Transactions of Electricity (Regional Entity-wise)	27
Table-16	Details of Congestion in Power Exchanges	29
Table-17	Volume of Short-term Transactions of Electricity in India (Day-wise)	30
Table-18	Price of Electricity in Short-term Transactions (Day-wise)	31
Table-19	Volume of Short-term Transactions of Electricity (Regional Entity-wise)	32
Table-20	Volume and Price of Renewable Energy Certificates (RECs) Transacted through Power Exchanges	36
<b>II</b>	<b>List of Figures</b>	
Figure-1	Volume of Short-term Transactions of Electricity	14
Figure-2	Volume of Various Kinds of Electricity Transactions in Total Electricity Generation	14
Figure-3	Volume of Short-term Transactions of Electricity (Day-wise)	15
Figure-4	Percentage Share of Electricity Transacted by Trading Licensees	16
Figure-5	Price of Electricity in Short-term Transactions	18
Figure-6	Price of Electricity in Short-term Transactions (Day-wise)	18
Figure-7	Bilateral Contracts Executed by Traders in December, 2015	35
Figure-8	Forward Curve based on Prices of Bilateral Contracts	35

## Abbreviations

Abbreviation	Expanded Version
ACBIL	ACB ( India) Limited
ACP	Area Clearing Price
ACV	Area Clearing Volume
AD HYDRO	AD Hydro Power Limited
BALCO	Bharat Aluminum Company Limited
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CGPL	Coastal Gujarat Power Limited
CHUZACHEN HEP	Chuzachen Hydro electric power project
COASTGEN	Coastal Energen Private Limited
DAGACHU	Dagachhu Hydro Power Corporation
DB POWER	Diligent Power Pvt. Ltd.
DCPP	Donga Mahua Captive Power Plant
DGEN MEGA POWER	DGEN Mega Power Project
DHARIWAL POWER	Dhariwal Power Station
DSM	Deviation Settlement Mechanism
DVC	Damodar Valley Corporation
EMCO	EMCO Energy Limited
ESSAR POWER	Essar Power Limited
ESSAR STEEL	Essar Steel Ltd
GMR CHHATTISGARH	GMR Chhattisgarh Energy Limited
GMR KAMALANGA	GMR Kamalanga Energy Ltd.
IEX	Indian Energy Exchange Limited
J&K	Jammu & Kashmir
JAYPEE NIGRIE	Jaypee Nigrie Super Thermal Power Project
JINDAL POWER	Jindal Power Limited
JINDAL STAGE-II	Jindal Power Ltd Stage II
JITPL	Jindal India Thermal Power Ltd.
KARCHAM WANGTOO	Jaypee Karcham Hydro Corporation Limited
KORBA WEST POWER	Korba West Power Company Limited
KSK MAHANADI	KSK Mahanadi Power Ltd
LANKO BUDHIL	Lanco Budhil Hydro Power Private Limited
LANKO AMK	Lanco Amarkantak Power Private Limited
LANKO KONDAPALLY	Lanco Kondapally Power Private Limited
LOKTAK	Loktak Power Project
MALANA	Malana Hydroelectric Plant
MB POWER	MB Power Ltd
MEENAKSHI	Meenakshi Energy Private Limited

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

## Introduction

A well-functioning electricity market requires an effective market monitoring process. As part of the market monitoring process, the monthly report on short-term transactions of electricity, is being prepared and posted on the website of CERC since August 2008. Here, “short-term transactions of electricity” refers to the contracts of less than one year period, for electricity transacted (inter-State & intra-State) through inter-State Trading Licensees and directly by the Distribution Licensees, Power Exchanges (Indian Energy Exchange Ltd (IEX) and Power Exchange India Ltd (PXIL)), and Deviation Settlement Mechanism (DSM). The objectives of the report are: (i) to observe the trends in volume and price of the short-term transactions of electricity; (ii) to analyse competition among the market players; (iii) to analyse effect of congestion on volume of electricity transacted through power exchanges; (iv) to analyse bilateral contracts executed by traders; (v) to provide information on volume and price of Renewable Energy Certificates (RECs) transacted through power exchanges; and (vi) to disclose/disseminate all relevant market information. The details of the report for the month of **November, 2015** are as under:

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

During November 2015, total electricity generation excluding generation from renewable and captive power plants in India was 85327.13 MUs (Table-1).

Of the total electricity generation, 9084.70 (10.65%) was transacted through short-term, comprising of 4709.77 MUs (5.52%) through bilateral (through traders and term-ahead contracts on power exchanges and directly between distribution companies), followed by 2727.99 MUs (3.20%) through day ahead collective transactions on power exchanges (IEX and PXIL) and 1646.95 MUs (1.93%) through DSM (Table-1 & Figure-2).

Of the total short-term transactions, bilateral constitutes 51.84% (27.68% through traders and term-ahead contracts on power exchanges and 24.16% directly between distribution companies) followed by 30.03% through day ahead collective transactions on power exchanges and 18.13% 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 44 trading licensees as on November, 2015. In November 2015, 20 trading licensees were engaged in short term trading. Top 5 trading licensees had a share of 75.33% in the total volume traded by all the licensees. These are PTC India Ltd., Tata Power Trading Company (P) Ltd., Mittal Processors (P) Ltd., JSW Power Trading Company Ltd., and Manikaran Power Ltd.

Herfindahl-Hirschman Index (HHI) has been used for measuring the competition among the trading licensees. Increase in the HHI generally indicates a decrease in competition and an increase of market concentration, and vice versa. The HHI below 0.15 indicates non-concentration, HHI between 0.15 to 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 0.1405 for the month of November 2015, which indicates non-concentration of market power (Table-2).

The volume of electricity transacted through IEX and PXIL in the day ahead market was 2719.78 MUs and 8.20 MUs respectively. The volume of total buy bids and sell bids was 3268.63 MUs and 4609.63 MUs respectively in IEX while the same was 32.27 MUs and 28.44 MUs respectively in PXIL. The variation in the volume of buy bids and sell bids placed through power exchanges shows variation in the demand and supply position.

The volume of electricity transacted through IEX and PXIL in the term-ahead market was 19.41 MUs and 80.67 MUs respectively (Table-6 & Table-7).

## **II: Price of Short-term Transactions of Electricity**

(i) *Price of electricity transacted through Traders:* The minimum, maximum and weighted average sale prices have been computed for the electricity transacted through traders and the sale prices were ₹3.02/kWh, ₹7.99/kWh and ₹4.44/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 ₹5.37/kWh, ₹3.89/kWh and ₹3.55/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 ₹0.60/kWh, ₹9.02/kWh and ₹2.73/kWh respectively in IEX and ₹1.17/kWh, ₹4.44/kWh and ₹2.82/kWh respectively in PXIL (Table-5).

The price of electricity transacted through IEX and PXIL in the term-ahead market was ₹3.06/kWh and ₹2.83/kWh respectively (Table-6 and Table-7).

**(iii) Price of electricity transacted through DSM:** The average deviation settlement price was ₹1.85/kWh for all India grid. The minimum and maximum deviation settlement prices were ₹0.00/kWh and ₹7.20/kWh respectively in the all India grid (Table-8).

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

### **III: Volume of Short-term Transactions of Electricity (Regional Entity<sup>1</sup>-Wise)**

Of the total bilateral transactions, top 5 regional entities sold 21.77% of the volume, and these were Haryana, Delhi, Punjab, GMR Kamalanga Energy Ltd and Thermal Powertech Corporation India Ltd. Top 5 regional entities purchased 45.54% of the volume, and these were Madhya Pradesh, Telangana, Chhattisgarh, Andhra Pradesh and Bihar (Table-9 & 10).

Of the total power exchange transactions, top 5 regional entities sold 37.88% of the volume, and these were Jindal India Thermal Power Ltd, Gujarat, Sterlite Energy Ltd, Chhattisgarh and Korba West Power Company Ltd. Top 5 regional entities purchased 48.77% of the volume, and these were Rajasthan, Gujarat, Delhi, Bihar and Haryana (Table-11 & 12).

---

<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 39.37% of the volume, and these were Maharashtra, NTPC Stations (Western Region), Gujarat, Tamil Nadu and Uttar Pradesh (Table-13). Top 5 regional entities overdrew 29.18% of the volume, and these were Uttar Pradesh, NTPC Stations (Eastern Region), Punjab, Rajasthan, and NTPC Stations (Northern Region) (Table-14).

Regional entity-wise total volume of net short-term transactions of electricity i.e. volume of net transactions through bilateral, power exchanges and DSM is shown in Table-15 & 19. Top 5 electricity selling regional entities were Jindal India Thermal Power Ltd, Thermal Powertech Corporation India Ltd, GMR Kamalanga Energy Ltd, Simhapuri Energy Private Ltd and Jindal Power Ltd. Top 5 electricity purchasing regional entities were Rajasthan, Madhya Pradesh, Bihar, Telangana, and Uttarakhand.

#### **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 November 2015, 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

---

<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 4.08% and 39.72% of the unconstrained cleared volume respectively. In terms of time, congestion occurred was 65.07% in IEX and 45.24% in PXIL (Table-16).

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

In addition to the analysis on short-term transactions of electricity in November 2015, this section covers an analysis of bilateral contracts executed in December 2015.

**(i) Duration of bilateral contracts:** During December 2015, a total of 17 bilateral contracts (excluding banking/swap contracts) have been executed by traders for the volume of 845.30 MUs. Figure-7 shows the percentage of contracts categorized according to the period of power supply. It can be observed from the figure that 35% of the bilateral contracts were executed for duration of up to one week, 35% of the contracts were executed for duration of more than a week and upto one month, 12% of the contracts were executed for duration of more than one month and upto three months and the rest 18% of the contracts were executed for duration of more than three months and upto one year.

During the month, 8 banking/swapping bilateral contracts were also executed for the volume of 286.86 MUs.

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

Figure-8 represents the forward curve of electricity sale prices for the period from December, 2015 to May, 2016 based on bilateral contracts<sup>4</sup> executed till December, 2015.

---

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

Forward curves have been drawn for the contracts executed in December, 2015 and November, 2015 for the purpose of comparison. It is observed that the forward prices from January, 2016 to May, 2016 were lower for the contracts executed in December, 2015 compared to the contracts executed in November, 2015.

## **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 November, 2015 are shown in Table-20. The market clearing volume of solar RECs transacted on IEX and PXIL were 41102 and 46665 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 89107 and 142438 respectively and the market clearing price of these RECs was ₹1500/MWh on both the power exchanges.

The gap between the volume of buy and sell bids of RECs placed through power exchanges shows that there was less demand for solar RECs and non-solar RECs. For Solar RECs, the ratio of buy bids to sell bids was 0.02 and 0.05 for IEX and PXIL respectively. For non-solar RECs, the ratio of buy bids to sell bids was 0.01 for IEX and 0.02 for PXIL.

## VII: Inferences:

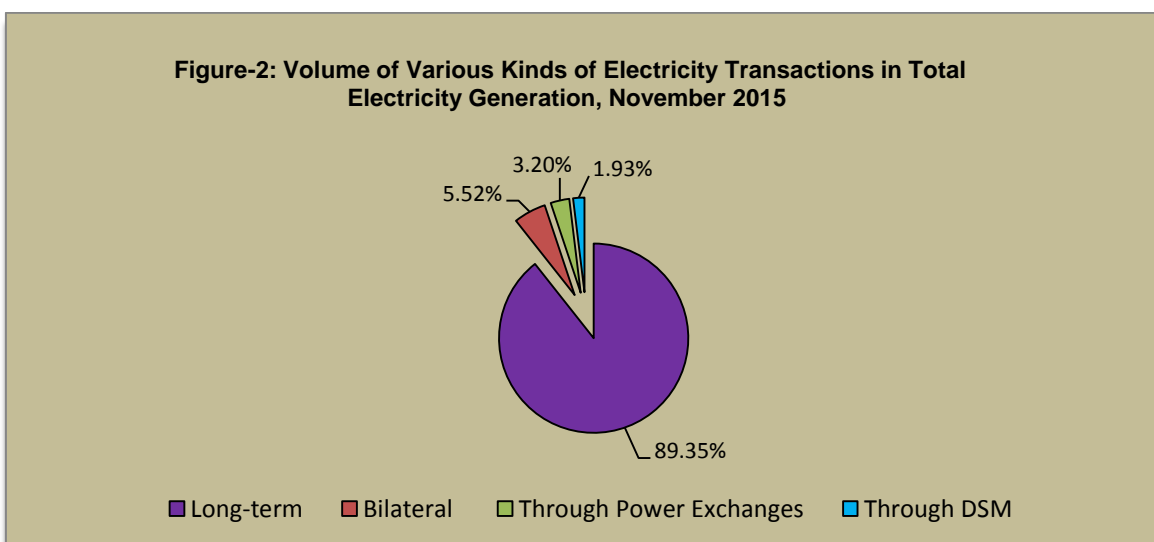
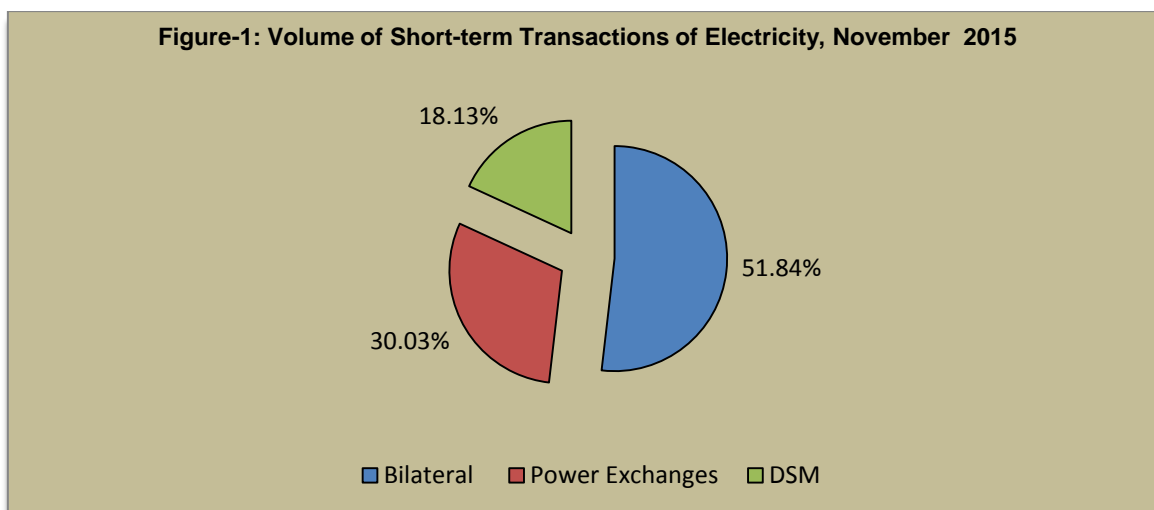
- The percentage of short-term transactions of electricity to total electricity generation was 10.65%.
- Of the total short-term transactions of electricity, 51.84% was transacted through bilateral (through traders and term ahead contracts on power exchanges and directly by distribution companies), followed by 30.03% through power exchanges and 18.13% through DSM.
- Top 5 trading licensees had a share of 75.33 % 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 0.1405, indicating non-concentration of market power.
- The weighted average price of electricity transacted through trading licensees was ₹4.44/kWh. The weighted average prices of electricity transacted through IEX and PXIL were ₹2.73/kWh and ₹2.82/kWh respectively.
- The average price of electricity transacted through DSM was ₹1.85/kWh
- Top 5 electricity selling regional entities were Jindal India Thermal Power Ltd, Thermal Powertech Corporation India Ltd, GMR Kamalanga Energy Ltd, Simhapuri Energy Private Ltd and Jindal Power Ltd. Top 5 electricity purchasing regional entities were Rajasthan, Madhya Pradesh, Bihar, Telangana, and Uttarakhand.
- The volume of electricity that could not be cleared due to congestion was 4.08% and 39.72% of the unconstrained cleared volume for IEX and PXIL, respectively. In terms of time, congestion occurred was 65.07% of the time in IEX and 45.24% of the time in PXIL.
- In December 2015, 35% of the bilateral contracts were executed for duration of up to one week, 35% of the contracts were executed for duration of more than a week and upto one month, 12% of the contracts were executed for duration of more than one month and upto

three months and the rest 18% of the contracts were executed for duration of more than three months and upto one year

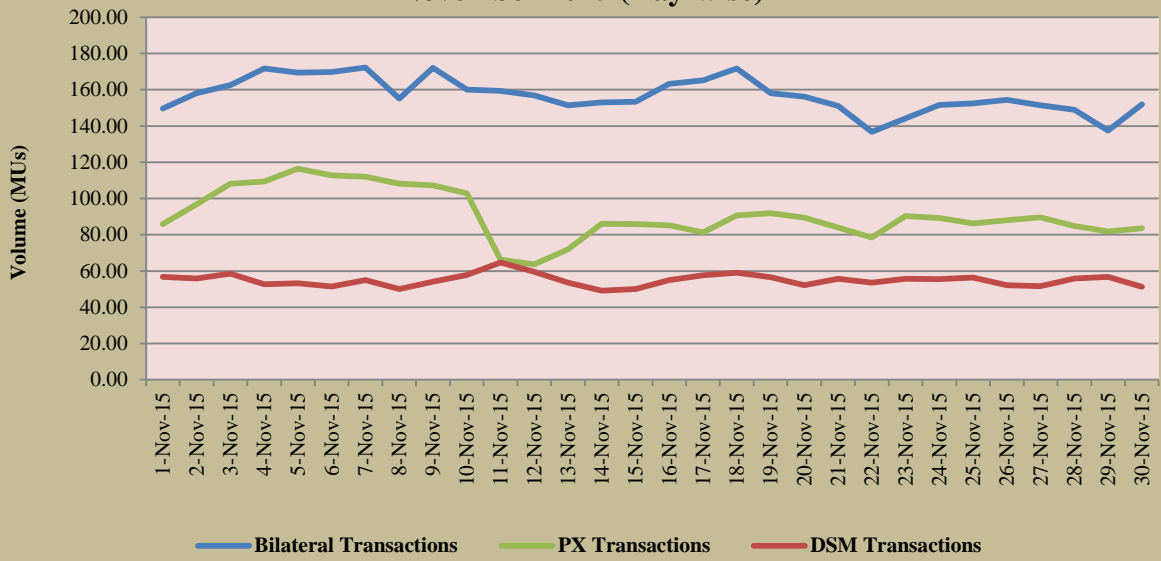
- The forward prices from January, 2016 to May, 2016 were lower for the contracts executed in December, 2015 compared to the contracts executed in November, 2015.
- The market clearing volume of solar RECs transacted on IEX and PXIL were 41102 and 46665 respectively and the market clearing price of these RECs was ₹3500/MWh on both the power exchanges. Market clearing volume of non-solar RECs transacted on IEX and PXIL were 89107 and 142438 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), NOVEMBER 2015				
Sr.No	Short-term transactions	Volume (MUs)	% to Volume of short-term transactions	% to Total Generation
1	Bilateral	4709.77	51.84	5.52
	(i) Through Traders and PXs	2514.98	27.68	2.95
	(ii) Direct	2194.79	24.16	2.57
2	Through Power Exchanges	2727.99	30.03	3.20
	(i) IEX	2719.78	29.94	3.19
	(ii) PXIL	8.20	0.09	0.01
3	Through DSM	1646.95	18.13	1.93
	<b>Total</b>	<b>9084.70</b>	<b>-</b>	<b>10.65</b>
	<b>Total Generation</b>	<b>85327.13</b>	<b>-</b>	<b>-</b>

Source: NLDC



**Figure-3: Volume of Short-term Transactions of Electricity, November 2015 (Day-wise)**



<b>Table-2: PERCENTAGE SHARE OF ELECTRICITY TRANSACTED BY TRADING LICENSEES, NOVEMBER 2015</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.	26.93	0.0725
2	Tata Power Trading Company (P) Ltd.	14.77	0.0218
3	Mittal Processors (P) Ltd.	12.08	0.0146
4	JSW Power Trading Company Ltd	10.89	0.0119
5	Manikaran Power Ltd.	10.67	0.0114
6	NTPC Vidyut Vyapar Nigam Ltd.	5.50	0.0030
7	Adani Enterprises Ltd.	5.11	0.0026
8	GMR Energy Trading Ltd.	3.08	0.0009
9	Arunachal Pradesh Power Corporation (P) ltd	2.85	0.0008
10	Knowledge Infrastructure Systems (P) Ltd	1.65	0.0003
11	Instinct Infra & Power Ltd.	1.56	0.0002
12	Jaiprakash Associates Ltd.	1.42	0.0002
13	Shree Cement Ltd.	1.12	0.0001
14	RPG Power Trading Company Ltd.	0.68	0.0000
15	Essar Electric Power Development Corp. Ltd.	0.45	0.0000
16	SN Power Markets Pvt. Ltd.	0.39	0.0000
17	My Home Power Private Ltd.	0.30	0.0000
18	National Energy Trading & Services Ltd.	0.25	0.0000
19	Customized Energy Solutions India (P) Ltd.	0.16	0.0000
20	Ambitious Power Trading Company Ltd.	0.15	0.0000
<b>TOTAL</b>		<b>100.00%</b>	<b>0.1405</b>
<b>Top 5 trading licensees</b>		<b>75.33%</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>			

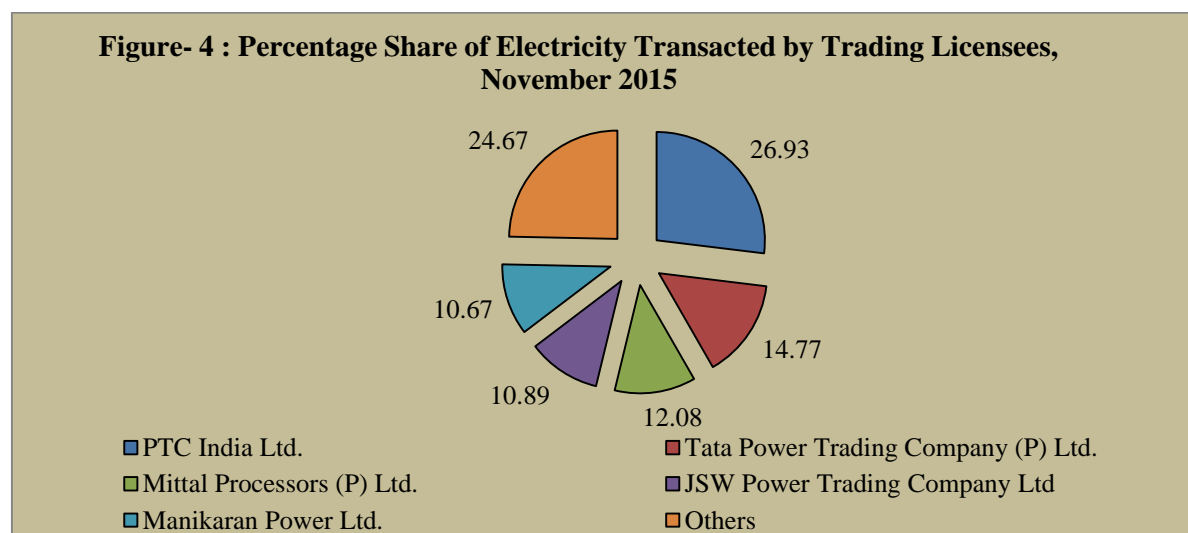




Table-3: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS, NOVEMBER 2015		
Sr.No	Item	Sale Price of Traders (₹/kWh)
1	Minimum	3.02
2	Maximum	7.99
3	Weighted Average	4.44

Source: Information submitted by trading licensees

Table-4: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS (TIME-WISE),NOVEMBER 2015		
Sr.No	Period of Trade	Sale Price of Traders (₹/kWh)
1	RTC	5.37
2	PEAK	3.89
3	OFF PEAK	3.55

Source: Information submitted by trading licensees

Table-5: PRICE OF ELECTRICITY TRANSACTED THROUGH POWER EXCHANGES, NOVEMBER 2015			
Sr.No	ACP	Price in IEX (₹/kWh)	Price in PXIL (₹/kWh)
1	Minimum	0.60	1.17
2	Maximum	9.02	4.44
3	Weighted Average	2.73	2.82

Source: Information submitted by IEX and PXIL

Table-6: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF IEX, NOVEMBER 2015			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	13.76	3.19
2	Day Ahead Contingency Contracts	5.65	2.75
	<b>Total</b>	<b>19.41</b>	<b>3.06</b>

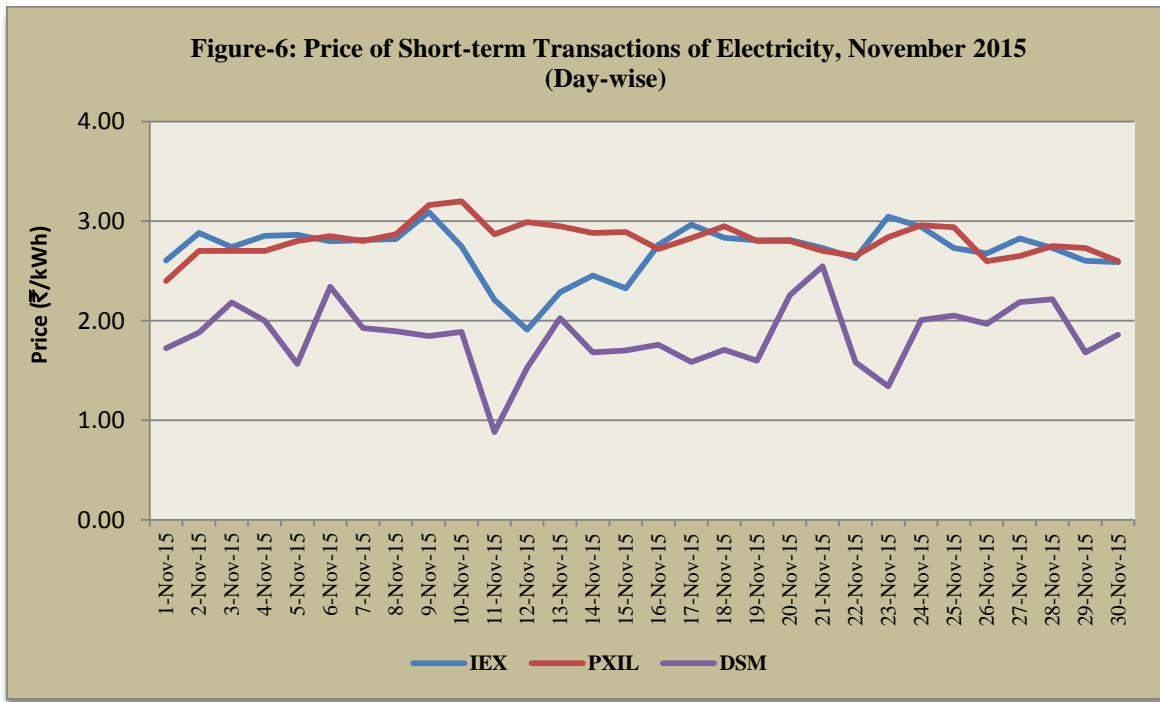
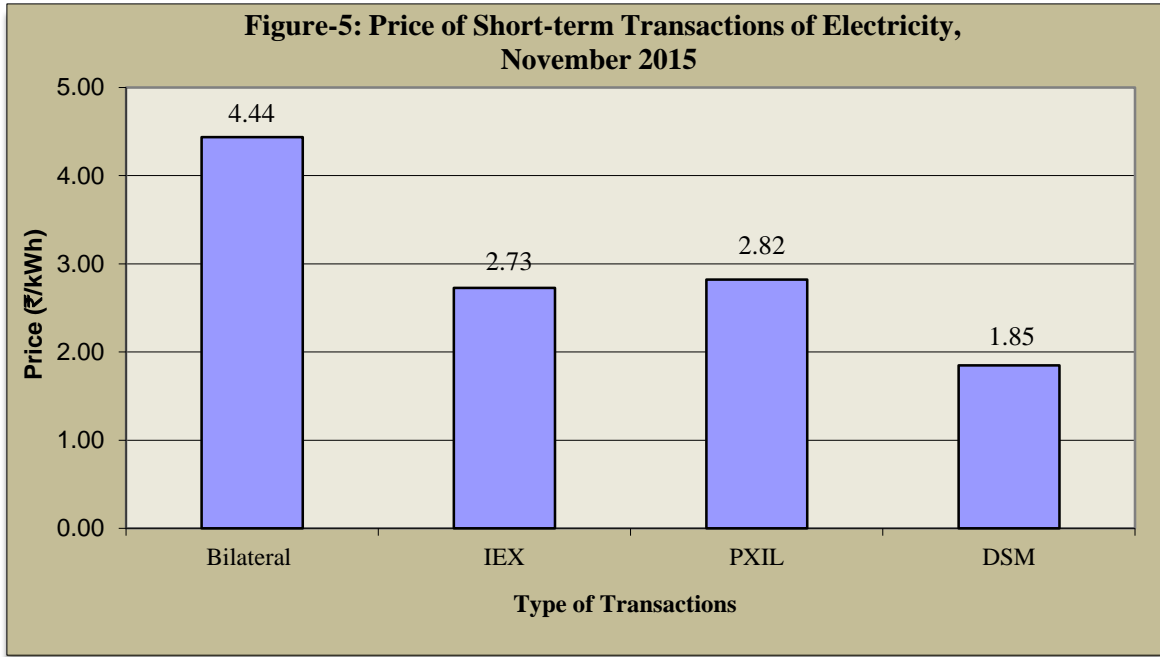
Source: IEX

Table-7: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF PXIL, NOVEMBER 2015			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	35.19	2.88
2	Daily Contacts	45.48	2.80
	<b>Total</b>	<b>80.67</b>	<b>2.83</b>

Source: PXIL

Table-8: PRICE OF ELECTRICITY TRANSACTED THROUGH DSM, NOVEMBER 2015		
Sr.No	Item	Price in All India Grid (₹/kWh)
1	Minimum	0.00
2	Maximum	7.20
3	Average	1.85

Source: NLDC



**Table-9: VOLUME OF ELECTRICITY SOLD THROUGH BILATERAL, NOVEMBER 2015**

<b>Name of the State/UT/Other Regional Entity</b>	<b>Volume of Sale (MUs)</b>	<b>% of Volume</b>
HARYANA	484.95	5.55
DELHI	422.71	4.84
PUNJAB	374.89	4.29
GMR KAMALANGA	330.01	3.78
THERMAL POWERTECH	289.25	3.31
SIMHAPURI	219.96	2.52
UTTAR PRADESH	199.92	2.29
GUJARAT	189.72	2.17
WEST BENGAL	183.28	2.10
LANKO KONDAPALLI	169.59	1.94
JINDAL POWER	167.80	1.92
JITPL	140.01	1.60
CHHATTISGARH	134.47	1.54
RAJASTHAN	109.62	1.25
SHREE CEMENT	107.25	1.23
STERLITE	103.92	1.19
DB POWER	97.92	1.12
HIMACHAL PRADESH	97.40	1.11
ANDHRA PRADESH	91.13	1.04
ADHUNIK POWER LTD	86.08	0.99
MEENAKSHI	83.66	0.96
DVC	43.97	0.50
ODISHA	40.50	0.46
DAGACHU	28.20	0.32
J & K	25.37	0.29
JINDAL STAGE-II	25.26	0.29
ACBIL	25.10	0.29
NSPCL	22.46	0.26
TELANGANA	19.01	0.22
TRIPURA	17.27	0.20
EMCO	13.61	0.16
GMR CHHATTISGARH	9.91	0.11
CHANDIGARH	7.20	0.08
MAHARASHTRA	4.97	0.06
MEGHALAYA	1.23	0.01
<b>TOTAL</b>	<b>4367.58</b>	<b>50.00</b>
<b>Total</b>	<b>8735.16</b>	<b>100.00</b>
<b>Volume Sold by top 5 Regional Entities</b>	<b>1901.80</b>	<b>21.77</b>

<b>Table-10: VOLUME OF ELECTRICITY PURCHASED THROUGH BILATERAL, NOVEMBER 2015</b>		
<b>Name of the State/UT/Other Regional Entity</b>	<b>Volume of Purchase (MUs)</b>	<b>% of Volume</b>
MP	624.53	13.26
TELANGANA	458.06	9.73
CHHATTISGARH	369.43	7.84
ANDHRA PRADESH	358.10	7.60
BIHAR	334.49	7.10
J & K	302.68	6.43
GUJARAT	300.45	6.38
MAHARASHTRA	294.48	6.25
HIMACHAL PRADESH	252.41	5.36
RAJASTHAN	250.82	5.33
HARYANA	228.43	4.85
WEST BENGAL	147.70	3.14
UTTARAKHAND	144.00	3.06
UTTAR PRADESH	142.28	3.02
ODISHA	129.16	2.74
KERALA	125.37	2.66
JHARKHAND	88.80	1.89
ESSAR STEEL	61.11	1.30
MEGHALAYA	39.65	0.84
MANIPUR	14.25	0.30
DADRA & NAGAR HAVELI	14.20	0.30
PUNJAB	7.92	0.17
KARNATAKA	7.89	0.17
TAMIL NADU	7.11	0.15
GOA	3.52	0.07
DELHI	2.45	0.05
ASSAM	0.48	0.01
<b>TOTAL</b>	<b>4709.77</b>	<b>100.00</b>
<b>Volume Purchased by top 5 Regional Entities</b>	<b>2144.61</b>	<b>45.54</b>

<b>Table-11: VOLUME OF ELECTRICITY SOLD THROUGH POWER EXCHANGES, NOVEMBER 2015</b>		
<b>Name of the State/UT/Other Regional Entity</b>	<b>Volume of Sale (MUs)</b>	<b>% of Volume</b>
JITPL	380.69	14.08
GUJARAT	200.91	7.43
STERLITE	172.78	6.39
CHHATTISGARH	135.96	5.03
KORBA WEST POWER	133.95	4.95
HIMACHAL PRADESH	113.50	4.20
JINDAL POWER	104.56	3.87
DCPP(DONGA MAHUA CAPTIVE POWER PLANT)	99.39	3.68
THERMAL POWERTECH	96.70	3.58
KARCHAM WANGTOO	91.21	3.37
TRIPURA	81.14	3.00
ODISHA	77.41	2.86
HARYANA	76.82	2.84
SIMHAPURI	64.78	2.40
JAYPEE NIGRIE	61.92	2.29
GMR CHHATTISGARH	57.41	2.12
MAITHON POWER LTD	57.12	2.11
DB POWER	50.09	1.85
TELANGANA	50.07	1.85
ADHUNIK POWER LTD	49.21	1.82
MAHARASHTRA	45.83	1.69
J & K	42.25	1.56
RAJASTHAN	37.45	1.39
MP	34.78	1.29
SHREE CEMENT	33.00	1.22
JINDAL STAGE-II	27.22	1.01
SIKKIM	27.04	1.00
WEST BENGAL	26.59	0.98
MANIPUR	26.45	0.98
MEENAKSHI	23.73	0.88
ACBIL	23.23	0.86
AD HYDRO	19.62	0.73
CHUZACHEN HEP	19.31	0.71
NHPC STATIONS	18.49	0.68
DVC	17.63	0.65
DELHI	15.38	0.57
GMR KAMALANGA	13.84	0.51
ASSAM	13.51	0.50
SPECTRUM	13.15	0.49
MEGHALAYA	11.09	0.41
CHANDIGARH	8.54	0.32
LANCO BUDHIL	7.52	0.28
NJPC	6.38	0.24
BALCO	5.48	0.20
EMCO	5.07	0.19
ANDHRA PRADESH	4.80	0.18
MIZORAM	4.36	0.16
UTTARAKHAND	4.23	0.16
KERALA	3.80	0.14
DHARIWAL POWER	3.79	0.14
GOA	2.87	0.11
NAGALAND	1.09	0.04
MALANA	0.51	0.02
LOKTAK	0.13	0.00
<b>Total</b>	<b>2703.74</b>	<b>100.00</b>
<b>Volume sold by top 5 Regional Entities</b>	<b>1024.29</b>	<b>37.88</b>

**Table-12: VOLUME OF ELECTRICITY PURCHASED THROUGH POWER EXCHANGES,  
NOVEMBER 2015**

<b>Name of the State/UT/Other Regional Entity</b>	<b>Volume of Purchase (MUs)</b>	<b>% of Volume</b>
RAJASTHAN	488.80	17.92
GUJARAT	240.66	8.82
DELHI	210.95	7.73
BIHAR	198.21	7.27
HARYANA	191.91	7.03
PUNJAB	179.63	6.58
WEST BENGAL	143.03	5.24
UTTARAKHAND	142.06	5.21
ESSAR STEEL	136.45	5.00
KERALA	120.82	4.43
KARNATAKA	101.43	3.72
MAHARASHTRA	97.00	3.56
DADRA & NAGAR HAVELI	77.98	2.86
TELANGANA	73.77	2.70
ANDHRA PRADESH	57.02	2.09
ODISHA	53.10	1.95
HIMACHAL PRADESH	44.03	1.61
ASSAM	43.52	1.60
DAMAN AND DIU	36.07	1.32
GOA	28.11	1.03
MEGHALAYA	22.67	0.83
MP	13.10	0.48
TAMIL NADU	8.26	0.30
JHARKHAND	6.90	0.25
UTTAR PRADESH	6.59	0.24
ARUNACHAL PRADESH	3.66	0.13
NAGALAND	1.01	0.04
J & K	0.78	0.03
CHANDIGARH	0.45	0.02
<b>TOTAL</b>	<b>2727.98</b>	<b>100.00</b>
<b>Volume purchased by top 5 Regional Entities</b>	<b>1330.53</b>	<b>48.77</b>

**Table-13: VOLUME OF ELECTRICITY UNDER DRAWAL (EXPORTED) THROUGH DSM, NOVEMBER 2015**

<b>Name of the State/UT/Other Regional Entity</b>	<b>Volume of Under drawal (MUs)</b>	<b>% of Volume</b>
MAHARASHTRA	182.58	11.75
NTPC STATIONS-WR	170.38	10.96
GUJARAT	95.36	6.14
TAMIL NADU	84.63	5.44
UTTAR PRADESH	79.04	5.09
NHPC STATIONS	71.59	4.61
MP	71.23	4.58
NTPC STATIONS-ER	53.44	3.44
KARNATAKA	49.34	3.17
TELANGANA	48.02	3.09
HARYANA	46.69	3.00
RAJASTHAN	40.62	2.61
PUNJAB	39.45	2.54
ANDHRA PRADESH	38.69	2.49
NTPC STATIONS-NR	35.71	2.30
BIHAR	35.59	2.29
CHHATTISGARH	33.20	2.14
WEST BENGAL	30.13	1.94
DVC	26.04	1.68
ODISHA	24.70	1.59
J & K	22.59	1.45
ESSAR STEEL	19.21	1.24
JHARKHAND	17.82	1.15
DELHI	16.48	1.06
NTPC STATIONS-SR	13.23	0.85
RANGANADI HEP	10.81	0.70
HIMACHAL PRADESH	10.80	0.69
DCPP(DONGA MAHUA CAPTIVE POWER PLANT)	10.11	0.65
CGPL(COASTAL GUJARAT POWER LTD)	10.08	0.65
JAYPEE NIGRIE	9.59	0.62
JITPL	8.38	0.54
DADRA & NAGAR HAVELI	8.27	0.53
UTTARAKHAND	7.90	0.51
PONDICHERRY	6.97	0.45
MAITHON POWER LTD	6.63	0.43
ASSAM	6.49	0.42
JINDAL POWER	6.45	0.41
NJPC	6.43	0.41
MEGHALAYA	6.29	0.40
GOA	6.28	0.40
NSPCL	6.05	0.39
TEESTA HEP	5.78	0.37
SIKKIM	5.62	0.36
CHANDIGARH	5.42	0.35
THERMAL POWERTECH	4.75	0.31
DAMAN AND DIU	4.12	0.27
KORBA WEST POWER	4.10	0.26
BALCO	4.03	0.26
KSK MAHANADI	3.88	0.25
ADHUNIK POWER LTD	3.81	0.25

DB POWER	3.16	0.20
EMCO	2.98	0.19
URI-2	2.74	0.18
GMR KAMALANGA	2.72	0.17
KARCHAM WANGTOO	2.49	0.16
STERLITE	2.34	0.15
MANIPUR	2.33	0.15
LANKO_AMK	1.91	0.12
KERALA	1.88	0.12
MB POWER	1.86	0.12
ARUNACHAL PRADESH	1.71	0.11
SIMHAPURI	1.44	0.09
COASTGEN	1.43	0.09
ACBIL	1.36	0.09
RANGIT HEP	1.27	0.08
TRIPURA	1.07	0.07
SHREE CEMENT	1.04	0.07
DGEN MEGA POWER	0.98	0.06
AD HYDRO	0.96	0.06
NAGALAND	0.94	0.06
CHUZACHEN HEP	0.69	0.04
MEENAKSHI	0.66	0.04
MIZORAM	0.39	0.02
GMR CHHATTISGARH	0.34	0.02
LANCO BUDHIL	0.20	0.01
MALANA	0.16	0.01
VANDANA VIDYUT	0.12	0.01
RGPPPL(DABHOL)	0.12	0.01
DAGACHU	0.10	0.01
ADANI HVDC	0.0897	0.01
DHARIWAL POWER	0.0569	0.00
<b>Total</b>	<b>1554.34</b>	<b>100.00</b>
<b>Volume Exported by top 5 Regional Entities</b>	<b>612.00</b>	<b>39.37</b>



<b>Table-14: VOLUME OF ELECTRICITY OVER DRAWAL (IMPORTED) THROUGH DSM, NOVEMBER 2015</b>		
<b>Name of the State/UT/Other Regional Entity</b>	<b>Volume of Over drawal (MUs)</b>	<b>% of Volume</b>
UTTAR PRADESH	104.35	7.15
NTPC STATIONS-ER	85.44	5.85
PUNJAB	84.61	5.79
RAJASTHAN	78.38	5.37
NTPC STATIONS-NR	73.27	5.02
KERALA	71.48	4.90
KARNATAKA	65.13	4.46
NTPC STATIONS-WR	55.95	3.83
UTTARAKHAND	50.87	3.48
HARYANA	47.01	3.22
ODISHA	40.98	2.81
NTPC STATIONS-SR	40.83	2.80
ANDHRA PRADESH	35.15	2.41
BIHAR	33.02	2.26
DELHI	32.34	2.21
GUJARAT	30.32	2.08
TAMIL NADU	30.23	2.07
GOA	30.13	2.06
HIMACHAL PRADESH	29.92	2.05
TELANGANA	27.06	1.85
ASSAM	24.28	1.66
WEST BENGAL	23.62	1.62
CHHATTISGARH	21.85	1.50
STERLITE	21.42	1.47
THERMAL POWERTECH	20.52	1.41
ESSAR STEEL	19.20	1.31
MP	18.46	1.26
J & K	15.62	1.07
MAHARASHTRA	15.42	1.06
GMR CHHATTISGARH	13.42	0.92
ARUNACHAL PRADESH	12.43	0.85
DVC	11.81	0.81
JHARKHAND	11.50	0.79
JITPL	11.18	0.77
CHANDIGARH	9.99	0.68
LANKO KONDAPALLI	9.65	0.66
BALCO	9.21	0.63
CGPL(COASTAL GUJARAT POWER LTD)	8.94	0.61
TRIPURA	8.57	0.59
RGPPL(DABHOL)	8.51	0.58
MB POWER	8.30	0.57
NAGALAND	8.12	0.56
DCPP	7.10	0.49
SIMHAPURI	6.91	0.47
DAMAN AND DIU	5.98	0.41
NSPCL	4.99	0.34
NHPC STATIONS	4.78	0.33
JINDAL POWER	4.74	0.32

MIZORAM	4.52	0.31
PONDICHERRY	4.03	0.28
NJPC	4.01	0.27
MAITHON POWER LTD	3.97	0.27
COASTGEN	3.93	0.27
MANIPUR	3.60	0.25
DB POWER	3.54	0.24
GMR KAMALANGA	3.23	0.22
RANGANADI HEP	3.16	0.22
MEENAKSHI	3.05	0.21
ACBIL	2.89	0.20
MEGHALAYA	2.74	0.19
KARCHAM WANGTOO	2.65	0.18
KORBA WEST POWER	2.50	0.17
EMCO	2.23	0.15
SHREE CEMENT	2.16	0.15
JAYPEE NIGRIE	2.07	0.14
KSK MAHANADI	2.02	0.14
SIKKIM	1.76	0.12
DADRA & NAGAR HAVELI	1.66	0.11
ADHUNIK POWER LTD	1.26	0.09
ESSAR POWER	1.10	0.08
DGEN MEGA POWER	1.03	0.07
DHARIWAL POWER	0.79	0.05
RANGIT HEP	0.76	0.05
URI-2	0.65	0.04
DAGACHU	0.52	0.04
MALANA	0.30	0.02
AD HYDRO	0.28	0.02
CHUZACHEN HEP	0.27	0.02
LANKO_AMK	0.22	0.01
LANCO BUDHIL	0.17	0.01
ADANI HVDC	0.05	0.00
TEESTA HEP	0.050	0.00
<b>TOTAL</b>	<b>1460.18</b>	<b>100.00</b>
<b>Volume Imported by top 5 Regional Entities</b>	<b>426.05</b>	<b>29.18</b>

**Table-15: TOTAL VOLUME OF NET SHORT-TERM TRANSACTIONS OF ELECTRICITY  
(REGIONAL ENTITY-WISE), NOVEMBER 2015**

<b>Sr.No.</b>	<b>Name of the State/UT/Other Regional Entity</b>	<b>Total volume of net short-term transactions of electricity*</b>
1	RAJASTHAN	630.31
2	MP	550.08
3	BIHAR	530.13
4	TELANGANA	441.79
5	UTTARAKHAND	324.81
6	ANDHRA PRADESH	315.65
7	KERALA	312.00
8	J & K	228.86
9	ESSAR STEEL	197.55
10	MAHARASHTRA	173.53
11	KARNATAKA	125.12
12	HIMACHAL PRADESH	104.67
13	JHARKHAND	89.39
14	CHHATTISGARH	87.66
15	DADRA & NAGAR HAVELI	85.58
16	GUJARAT	85.44
17	ODISHA	80.64
18	WEST BENGAL	74.36
19	GOA	52.60
20	ASSAM	48.28
21	MEGHALAYA	46.45
22	DAMAN AND DIU	37.93
23	NTPC STATIONS-NR	37.56
24	NTPC STATIONS-ER	32.00
25	NTPC STATIONS-SR	27.60
26	ARUNACHAL PRADESH	14.38
27	RGPPPL(DABHOL)	8.39
28	NAGALAND	7.10
29	MB POWER	6.44
30	COASTGEN	2.50
31	ESSAR POWER	1.10
32	DGEN MEGA POWER	0.05
33	MARUTI COAL	0.00
34	NTPC STATIONS-NER	0.00
35	NEEPCO STATIONS	0.00
36	DOYANG HEP	0.00
37	ONGC PALATANA	0.00
38	ADANI HVDC	-0.04
39	VANDANA VIDYUT	-0.12
40	LOKTAK	-0.13
41	MIZORAM	-0.23
42	BALCO	-0.30
43	MALANA	-0.36
44	RANGIT HEP	-0.51
45	CGPL(COASTAL GUJARAT POWER LTD)	-1.14
46	LANKO_AMK	-1.70
47	KSK MAHANADI	-1.87
48	URI-2	-2.10

49	PONDICHERRY	-2.94
50	DHARIWAL POWER	-3.06
51	TEESTA HEP	-5.73
52	LANCO BUDHIL	-7.55
53	RANGANADI HEP	-7.65
54	NJPC	-8.80
55	CHANDIGARH	-10.72
56	MANIPUR	-10.93
57	SPECTRUM	-13.15
58	EMCO	-19.43
59	CHUZACHEN HEP	-19.73
60	AD HYDRO	-20.31
61	NSPCL	-23.52
62	UTTAR PRADESH	-25.74
63	DAGACHU	-27.78
64	SIKKIM	-30.90
65	TAMIL NADU	-39.03
66	ACBIL	-46.79
67	JINDAL STAGE-II	-52.48
68	GMR CHATTISGARH	-54.24
69	MAITHON POWER LTD	-59.78
70	JAYPEE NIGRIE	-69.44
71	DVC	-75.83
72	NHPC STATIONS	-85.30
73	TRIPURA	-90.91
74	KARCHAM WANGTOO	-91.05
75	DCPP(DONGA MAHUA CAPTIVE POWER PLANT)	-102.40
76	MEENAKSHI	-105.00
77	NTPC STATIONS-WR	-114.43
78	KORBA WEST POWER	-135.56
79	ADHUNIK POWER LTD	-137.83
80	SHREE CEMENT	-139.13
81	HARYANA	-141.11
82	PUNJAB	-142.17
83	DB POWER	-147.63
84	LANKO KONDAPALLI	-159.93
85	DELHI	-208.84
86	STERLITE	-257.63
87	JINDAL POWER	-274.07
88	SIMHAPURI	-279.26
89	GMR KAMALANGA	-343.33
90	THERMAL POWERTECH	-370.17
91	JITPL	-517.90
* 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, NOVEMBER 2015</b>			
	<b>Details of Congestion</b>	<b>IEX</b>	<b>PXIL</b>
A	Unconstrained Cleared Volume* (MUs)	2844.73	13.61
B	Actual Cleared Volume and hence scheduled (MUs)	2728.54	8.20
C	Volume of electricity that could not be cleared and hence not scheduled because of congestion (MUs) (A-B)	116.19	5.40
D	Volume of electricity that could not be cleared as % to Unconstrained Cleared Volume	4.08%	39.72%
E	Percentage of the time congestion occurred during the month (Number of hours congestion occurred/Total number of hours in the month)	65.07%	45.24%
F	Congestion occurrence (%) time block wise		
	0.00 - 6.00 hours	7.74%	0.00%
	6.00 - 12.00 hours	34.63%	34.38%
	12.00 - 18.00 hours	30.26%	33.77%
	18.00 - 24.00 hours	27.37%	31.85%
* This power would have been scheduled had there been no congestion.			
Source: IEX & PXIL & NLDC			

<b>Table-17: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY IN INDIA (MUs) (DAY-WISE), NOVEMBER 2015</b>						
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-Nov-15	77.72	72.01	85.69	0.23	56.74	2891.10
2-Nov-15	80.98	77.23	96.64	0.22	55.92	2987.00
3-Nov-15	83.75	78.81	107.92	0.23	58.57	3037.60
4-Nov-15	86.46	85.21	109.17	0.22	52.64	3062.40
5-Nov-15	81.24	88.22	116.27	0.22	53.30	3026.80
6-Nov-15	81.48	88.38	112.42	0.23	51.36	3047.03
7-Nov-15	86.99	85.26	111.91	0.21	54.96	3017.99
8-Nov-15	78.91	76.16	107.83	0.24	50.04	2990.90
9-Nov-15	87.53	84.64	106.99	0.35	54.09	2915.90
10-Nov-15	83.72	76.32	102.69	0.16	57.76	2798.20
11-Nov-15	90.44	68.88	66.05	0.16	64.74	2663.30
12-Nov-15	84.54	72.40	63.50	0.16	59.58	2653.30
13-Nov-15	79.25	72.19	71.84	0.17	53.52	2705.81
14-Nov-15	76.65	76.42	85.75	0.28	49.19	2734.87
15-Nov-15	78.39	75.05	85.25	0.56	50.08	2768.20
16-Nov-15	86.53	76.69	84.91	0.36	55.04	2790.36
17-Nov-15	85.25	80.03	81.01	0.30	57.70	2801.40
18-Nov-15	91.72	80.05	90.24	0.33	59.07	2802.00
19-Nov-15	87.21	70.84	91.62	0.18	56.53	2787.90
20-Nov-15	86.00	70.11	89.19	0.17	52.08	2763.19
21-Nov-15	87.24	63.90	83.72	0.21	55.66	2741.52
22-Nov-15	80.91	55.84	78.24	0.21	53.50	2731.76
23-Nov-15	84.30	59.88	89.73	0.52	55.69	2805.30
24-Nov-15	85.93	65.58	88.75	0.58	55.45	2828.00
25-Nov-15	87.05	65.35	85.85	0.38	56.36	2855.78
26-Nov-15	85.26	69.21	87.72	0.23	52.08	2857.11
27-Nov-15	83.33	68.03	89.42	0.23	51.57	2822.20
28-Nov-15	82.28	66.71	84.67	0.23	55.79	2869.03
29-Nov-15	79.42	57.97	81.36	0.43	56.66	2745.18
30-Nov-15	84.49	67.42	83.44	0.23	51.25	2826.00
<b>Total</b>	<b>2514.98</b>	<b>2194.79</b>	<b>2719.78</b>	<b>8.20</b>	<b>1646.95</b>	<b>85327.13</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 (₹/kWh),NOVEMBER 2015 (DAY-WISE)									
Market Segment	Day ahead market of IEX			Day ahead market of PXIL			Under Draw/Over Draw from the Grid (DSM)		
Date	Mini-mum ACP	Maxi-mum ACP	Weighted Average Price*	Mini-mum ACP	Maxi-mum ACP	Weighted Average Price*	All India Grid		
							Mini-mum Price	Maxi-mum Price	Average Price**
1-Nov-15	0.80	9.01	2.61	2.40	2.40	2.40	0.00	4.91	1.72
2-Nov-15	1.25	5.80	2.88	2.70	2.70	2.70	0.00	5.95	1.88
3-Nov-15	1.00	6.01	2.74	2.70	2.70	2.70	0.00	5.11	2.19
4-Nov-15	1.00	5.00	2.85	1.17	4.36	2.70	0.00	5.32	2.00
5-Nov-15	1.80	5.00	2.86	1.35	4.39	2.80	0.00	3.45	1.57
6-Nov-15	1.59	4.30	2.80	1.87	4.36	2.85	0.00	5.74	2.34
7-Nov-15	1.53	5.70	2.81	1.85	3.98	2.80	0.00	3.45	1.93
8-Nov-15	2.06	5.21	2.82	1.40	4.01	2.87	0.00	5.11	1.89
9-Nov-15	1.87	4.85	3.09	1.47	4.01	3.16	0.00	3.45	1.85
10-Nov-15	1.04	5.00	2.75	2.00	4.44	3.20	0.00	3.45	1.89
11-Nov-15	0.70	5.25	2.21	1.50	3.55	2.87	0.00	3.45	0.88
12-Nov-15	0.60	5.40	1.91	2.74	3.51	2.99	0.00	5.95	1.53
13-Nov-15	1.59	5.01	2.29	2.49	3.01	2.95	0.00	5.11	2.03
14-Nov-15	1.75	5.01	2.45	1.50	3.01	2.88	0.00	3.24	1.68
15-Nov-15	1.59	4.30	2.32	1.50	3.51	2.89	0.00	5.32	1.70
16-Nov-15	1.58	5.51	2.76	1.95	3.51	2.72	0.00	5.11	1.76
17-Nov-15	1.87	6.00	2.97	2.50	3.01	2.83	0.00	5.74	1.58
18-Nov-15	1.98	6.01	2.83	2.60	3.01	2.95	0.00	5.95	1.71
19-Nov-15	2.07	8.01	2.81	2.80	2.80	2.80	0.00	5.32	1.60
20-Nov-15	1.87	7.50	2.81	2.80	2.80	2.80	0.00	6.36	2.26
21-Nov-15	1.80	7.01	2.73	2.70	2.70	2.70	0.00	7.20	2.55
22-Nov-15	1.81	7.01	2.63	2.65	2.65	2.65	0.00	4.91	1.58
23-Nov-15	1.81	7.01	3.04	2.00	3.01	2.84	0.00	3.45	1.34
24-Nov-15	1.87	6.75	2.94	2.60	3.01	2.96	0.00	4.91	2.01
25-Nov-15	1.81	6.75	2.73	2.50	3.01	2.94	0.00	5.74	2.05
26-Nov-15	0.90	8.01	2.68	2.08	3.00	2.60	0.00	6.16	1.97
27-Nov-15	1.75	9.02	2.83	2.15	3.00	2.65	0.00	5.32	2.19
28-Nov-15	1.14	7.01	2.73	2.27	2.99	2.75	0.00	5.95	2.22
29-Nov-15	1.59	6.51	2.60	2.10	3.01	2.73	0.00	5.32	1.68
30-Nov-15	1.00	8.01	2.59	1.95	3.00	2.60	0.00	5.11	1.86
	<b>0.60#</b>	<b>9.02#</b>	<b>2.70</b>	<b>1.17#</b>	<b>4.44#</b>	<b>2.82</b>	<b>0.00#</b>	<b>7.20#</b>	<b>1.85**</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), NOVEMBER 2015**

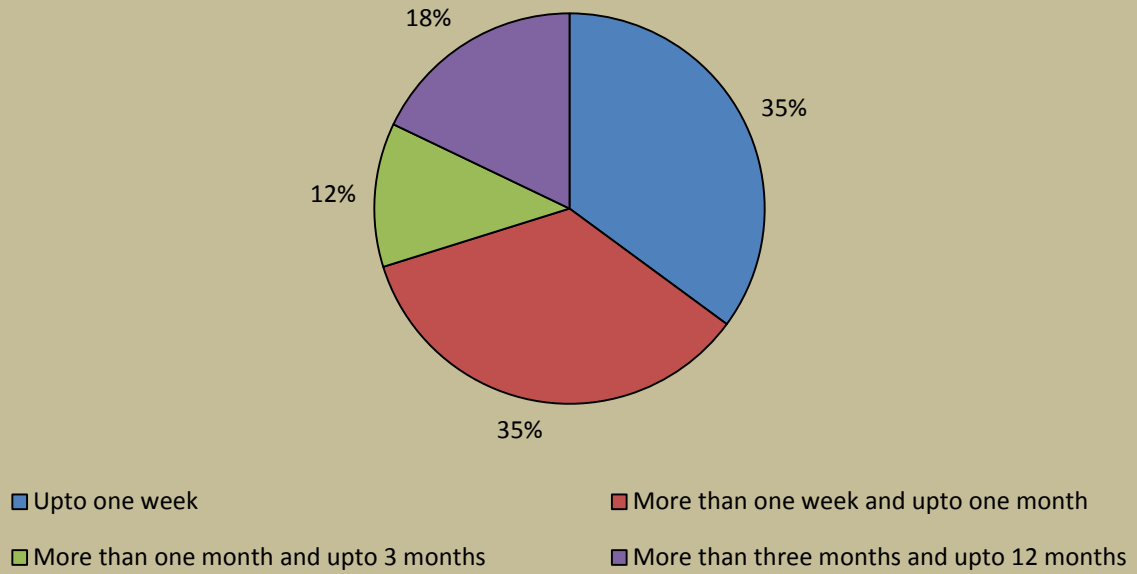
Name of the State/UT/Other Regional Entity	Through Bilateral			Through Power Exchange			Through DSM with Regional Grid			Total Net***
	Sale	Purchase	Net**	Sale	Purchase	Net**	Import (Over Drawl)	Export (Under Drawl)	Net**	
PUNJAB	374.89	7.92	-366.96	0.00	179.63	179.63	84.61	39.45	45.16	-142.17
HARYANA	484.95	228.43	-256.52	76.82	191.91	115.09	47.01	46.69	0.32	-141.11
RAJASTHAN	109.62	250.82	141.20	37.45	488.80	451.35	78.38	40.62	37.75	630.31
DELHI	422.71	2.45	-420.26	15.38	210.95	195.56	32.34	16.48	15.86	-208.84
UTTAR PRADESH	199.92	142.28	-57.64	0.00	6.59	6.59	104.35	79.04	25.31	-25.74
UTTARAKHAND	0.00	144.00	144.00	4.23	142.06	137.84	50.87	7.90	42.97	324.81
HIMACHAL PRADESH	97.40	252.41	155.01	113.50	44.03	-69.46	29.92	10.80	19.12	104.67
J & K	25.37	302.68	277.31	42.25	0.78	-41.48	15.62	22.59	-6.97	228.86
CHANDIGARH	7.20	0.00	-7.20	8.54	0.45	-8.09	9.99	5.42	4.57	-10.72
MP	0.00	624.53	624.53	34.78	13.10	-21.67	18.46	71.23	-52.77	550.08
MAHARASHTRA	4.97	294.48	289.51	45.83	97.00	51.17	15.42	182.58	-167.16	173.53
GUJARAT	189.72	300.45	110.73	200.91	240.66	39.75	30.32	95.36	-65.04	85.44
CHHATTISGARH	134.47	369.43	234.96	135.96	0.00	-135.96	21.85	33.20	-11.35	87.66
DAMAN AND DIU	0.00	0.00	0.00	0.00	36.07	36.07	5.98	4.12	1.86	37.93
DADRA & NAGAR HAVELI	0.00	14.20	14.20	0.00	77.98	77.98	1.66	8.27	-6.60	85.58
ANDHRA PRADESH	91.13	358.10	266.97	4.80	57.02	52.22	35.15	38.69	-3.54	315.65
KARNATAKA	0.00	7.89	7.89	0.00	101.43	101.43	65.13	49.34	15.79	125.12
KERALA	0.00	125.37	125.37	3.80	120.82	117.03	71.48	1.88	69.60	312.00
TAMIL NADU	0.00	7.11	7.11	0.00	8.26	8.26	30.23	84.63	-54.40	-39.03
PONDICHERRY	0.00	0.00	0.00	0.00	0.00	0.00	4.03	6.97	-2.94	-2.94
GOA	0.00	3.52	3.52	2.87	28.11	25.23	30.13	6.28	23.85	52.60
TELANGANA	19.01	458.06	439.05	50.07	73.77	23.70	27.06	48.02	-20.97	441.79
WEST BENGAL	183.28	147.70	-35.58	26.59	143.03	116.45	23.62	30.13	-6.51	74.36
ODISHA	40.50	129.16	88.66	77.41	53.10	-24.30	40.98	24.70	16.28	80.64
BIHAR	0.00	334.49	334.49	0.00	198.21	198.21	33.02	35.59	-2.57	530.13
JHARKHAND	0.00	88.80	88.80	0.00	6.90	6.90	11.50	17.82	-6.32	89.39
SIKKIM	0.00	0.00	0.00	27.04	0.00	-27.04	1.76	5.62	-3.86	-30.90
DVC	43.97	0.00	-43.97	17.63	0.00	-17.63	11.81	26.04	-14.22	-75.83
ARUNACHAL PRADESH	0.00	0.00	0.00	0.00	3.66	3.66	12.43	1.71	10.72	14.38
ASSAM	0.00	0.48	0.48	13.51	43.52	30.01	24.28	6.49	17.79	48.28
MANIPUR	0.00	14.25	14.25	26.45	0.00	-26.45	3.60	2.33	1.27	-10.93
MEGHALAYA	1.23	39.65	38.42	11.09	22.67	11.58	2.74	6.29	-3.55	46.45
MIZORAM	0.00	0.00	0.00	4.36	0.00	-4.36	4.52	0.39	4.13	-0.23
NAGALAND	0.00	0.00	0.00	1.09	1.01	-0.08	8.12	0.94	7.18	7.10
TRIPURA	17.27	0.00	-17.27	81.14	0.00	-81.14	8.57	1.07	7.51	-90.91
NTPC STATIONS-NR	0.00	0.00	0.00	0.00	0.00	0.00	73.27	35.71	37.56	37.56



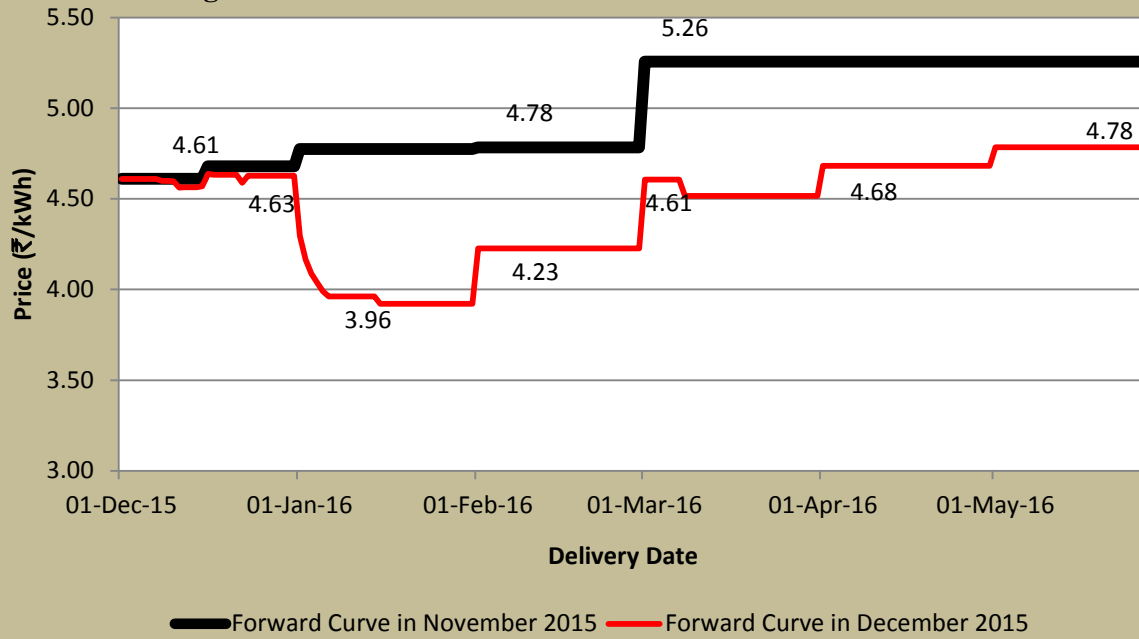
NHPC STATIONS	0.00	0.00	0.00	18.49	0.00	-18.49	4.78	71.59	-66.81	-85.30
NJPC	0.00	0.00	0.00	6.38	0.00	-6.38	4.01	6.43	-2.42	-8.80
AD HYDRO	0.00	0.00	0.00	19.62	0.00	-19.62	0.28	0.96	-0.68	-20.31
KARCHAM WANGTOO	0.00	0.00	0.00	91.21	0.00	-91.21	2.65	2.49	0.15	-91.05
SHREE CEMENT	107.25	0.00	-107.25	33.00	0.00	-33.00	2.16	1.04	1.12	-139.13
LANCO BUDHIL	0.00	0.00	0.00	7.52	0.00	-7.52	0.17	0.20	-0.03	-7.55
ADANI HVDC	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	-0.04	-0.04
MALANA	0.00	0.00	0.00	0.51	0.00	-0.51	0.30	0.16	0.15	-0.36
URI-2	0.00	0.00	0.00	0.00	0.00	0.00	0.65	2.74	-2.10	-2.10
NTPC STATIONS-WR	0.00	0.00	0.00	0.00	0.00	0.00	55.95	170.38	-114.43	-114.43
JINDAL POWER	167.80	0.00	-167.80	104.56	0.00	-104.56	4.74	6.45	-1.71	-274.07
LANKO_AMK	0.00	0.00	0.00	0.00	0.00	0.00	0.22	1.91	-1.70	-1.70
NSPCL	22.46	0.00	-22.46	0.00	0.00	0.00	4.99	6.05	-1.06	-23.52
ACBIL	25.10	0.00	-25.10	23.23	0.00	-23.23	2.89	1.36	1.54	-46.79
BALCO	0.00	0.00	0.00	5.48	0.00	-5.48	9.21	4.03	5.18	-0.30
RGPP(LDABHOL)	0.00	0.00	0.00	0.00	0.00	0.00	8.51	0.12	8.39	8.39
CGPL	0.00	0.00	0.00	0.00	0.00	0.00	8.94	10.08	-1.14	-1.14
DCPP	0.00	0.00	0.00	99.39	0.00	-99.39	7.10	10.11	-3.01	-102.40
EMCO	13.61	0.00	-13.61	5.07	0.00	-5.07	2.23	2.98	-0.75	-19.43
VANDANA VIDYUT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	-0.12	-0.12
ESSAR STEEL	0.00	61.11	61.11	0.00	136.45	136.45	19.20	19.21	-0.01	197.55
KSK MAHANADI	0.00	0.00	0.00	0.00	0.00	0.00	2.02	3.88	-1.87	-1.87
ESSAR POWER	0.00	0.00	0.00	0.00	0.00	0.00	1.10	0.00	1.10	1.10
JINDAL STAGE-II	25.26	0.00	-25.26	27.22	0.00	-27.22	0.00	0.00	0.00	-52.48
DB POWER	97.92	0.00	-97.92	50.09	0.00	-50.09	3.54	3.16	0.39	-147.63
DHARIWAL POWER	0.00	0.00	0.00	3.79	0.00	-3.79	0.79	0.06	0.74	-3.06
JAYPEE NIGRIE	0.00	0.00	0.00	61.92	0.00	-61.92	2.07	9.59	-7.52	-69.44
DGEN MEGA POWER	0.00	0.00	0.00	0.00	0.00	0.00	1.03	0.98	0.05	0.05
GMR CHHATTISGARH	9.91	0.00	-9.91	57.41	0.00	-57.41	13.42	0.34	13.08	-54.24
KORBA WEST POWER	0.00	0.00	0.00	133.95	0.00	-133.95	2.50	4.10	-1.60	-135.56
MB POWER	0.00	0.00	0.00	0.00	0.00	0.00	8.30	1.86	6.44	6.44
SPECTRUM	0.00	0.00	0.00	13.15	0.00	-13.15	0.00	0.00	0.00	-13.15
NTPC STATIONS-SR	0.00	0.00	0.00	0.00	0.00	0.00	40.83	13.23	27.60	27.60
LANKO KONDAPALLI	169.59	0.00	-169.59	0.00	0.00	0.00	9.65	0.00	9.65	-159.93
SIMHAPURI	219.96	0.00	-219.96	64.78	0.00	-64.78	6.91	1.44	5.48	-279.26
MEENAKSHI	83.66	0.00	-83.66	23.73	0.00	-23.73	3.05	0.66	2.39	-105.00
COASTGEN	0.00	0.00	0.00	0.00	0.00	0.00	3.93	1.43	2.50	2.50
THERMAL POWERTECH	289.25	0.00	-289.25	96.70	0.00	-96.70	20.52	4.75	15.77	-370.17
NTPC STATIONS-ER	0.00	0.00	0.00	0.00	0.00	0.00	85.44	53.44	32.00	32.00
STERLITE	103.92	0.00	-103.92	172.78	0.00	-172.78	21.42	2.34	19.07	-257.63

MAITHON POWER LTD	0.00	0.00	0.00	57.12	0.00	-57.12	3.97	6.63	-2.66	-59.78
ADHUNIK POWER LTD	86.08	0.00	-86.08	49.21	0.00	-49.21	1.26	3.81	-2.55	-137.83
CHUZACHEN HEP	0.00	0.00	0.00	19.31	0.00	-19.31	0.27	0.69	-0.42	-19.73
RANGIT HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.76	1.27	-0.51	-0.51
GMR KAMALANGA	330.01	0.00	-330.01	13.84	0.00	-13.84	3.23	2.72	0.52	-343.33
JITPL	140.01	0.00	-140.01	380.69	0.00	-380.69	11.18	8.38	2.80	-517.90
TEESTA HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.05	5.78	-5.73	-5.73
DAGACHU	28.20	0.00	-28.20	0.00	0.00	0.00	0.52	0.10	0.42	-27.78
RANGANADI HEP	0.00	0.00	0.00	0.00	0.00	0.00	3.16	10.81	-7.65	-7.65
LOKTAK	0.00	0.00	0.00	0.13	0.00	-0.13	0.00	0.00	0.00	-0.13
<b>TOTAL</b>	<b>4367.58</b>	<b>4709.77</b>	<b>342.19</b>	<b>2703.74</b>	<b>2727.98</b>	<b>24.25</b>	<b>1460.18</b>	<b>1554.34</b>	<b>-94.15</b>	<b>272.29</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 December, 2015**



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



<b>Table-20 : VOLUME AND PRICE OF RENEWABLE ENERGY CERTIFICATES (RECs) TRANSACTIONED THROUGH POWER EXCHANGES, NOVEMBER 2015</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	41102	89107	46665	142438
B	Volume of Sell Bid	1976072	6176983	938422	7603829
C	Ratio of Buy Bid to Sell Bid Volume	0.02	0.01	0.05	0.02
D	Market Clearing Volume (MWh)	41102	89107	46665	142438
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 January 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>