

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

June, 2016



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## Abbreviations

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

MALANA	Malana Hydroelectric Plant
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
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
NVVN	NTPC Vidyut Vyapar Nigam 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
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 **June, 2016** are as under:

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

During June 2016, total electricity generation excluding generation from renewable and captive power plants in India was 97254.66 MUs (Table-1).

Of the total electricity generation, 10280.42 MUs (10.57 %) was transacted through short-term, comprising of 4945.07 MUs (5.08%) through bilateral (through traders and term-ahead contracts on power exchanges and directly between distribution companies), followed by 3146.41 MUs (3.24%) through day ahead collective transactions on power exchanges (IEX and PXIL) and 2188.93 MUs (2.25%) through DSM (Table-1 & Figure-2).

Of the total short-term transactions, bilateral constitutes 48.10% (29.33% through traders and term-ahead contracts on power exchanges and 18.77% directly between distribution companies) followed by 30.61% through day ahead collective transactions on power exchanges and 21.29% 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 38 trading licensees as on June, 2016. In June 2016, 22 trading licensees were engaged in short term trading. Top 5 trading licensees had a share of 76.01% in the total volume traded by all the licensees. These are PTC India Ltd., Mittal Processors (P) Ltd., Manikaran Power Ltd., Tata Power Trading Company (P) Ltd. and Adani Enterprises Ltd.

Herfindahl-Hirschman Index (HHI) has been used for measuring the competition among the trading licensees. Increase in the HHI generally indicates a decrease in competition and an increase of market concentration, and vice versa. The HHI below 0.15 indicates non-concentration, HHI between 0.15 and 0.25 indicates moderate concentration and HHI above 0.25 indicates high concentration. The HHI has been computed based on the volume of electricity traded (inter-State & intra-State) by inter-State trading licensees, and it was 0.1740 for the month of June 2016, which indicates moderate concentration of market power (Table-2).

The volume of electricity transacted through IEX and PXIL in the day ahead market was 3143.60 MUs and 2.81 MUs respectively. The volume of total buy bids and sell bids was 3685.18 MUs and 5903.91 MUs respectively in IEX while the same was 6.43 MUs and 27.25 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 31.09 MUs and 8.05 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 ₹0.03/kWh, ₹5.35/kWh and ₹3.43/kWh respectively (Table-3). The weighted average sale prices were also computed for the transactions during Round the Clock (RTC) and Off-Peak periods separately, and the sale prices were ₹3.50/kWh and ₹2.76/kWh respectively (Table-4).

**(ii) Price of electricity transacted through Power Exchanges:** The minimum, maximum and weighted average prices have been computed for the electricity transacted through IEX and PXIL separately. The minimum, maximum and weighted average prices were ₹0.70/kWh, ₹6.00/kWh and ₹2.42/kWh respectively in IEX and ₹0.00/kWh, ₹3.00/kWh and ₹2.31/kWh respectively in PXIL (Table-5).

The price of electricity transacted through IEX and PXIL in the term-ahead market was ₹3.13/kWh and ₹2.67/kWh respectively (Table-6 and Table-7).

**(iii) Price of electricity transacted through DSM:** The average deviation settlement price was ₹1.78/kWh. The minimum and maximum deviation settlement prices were ₹0.00/kWh and ₹8.03/kWh respectively (Table-8).

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

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

Of the total bilateral transactions, top 5 regional entities sold 46.28% of the volume, and these were Himachal Pradesh, Thermal Powertech Corporation India Ltd, Jammu & Kashmir, Rajasthan and GMR Kamalanga. Top 5 regional entities purchased 62.41% of the volume, and these were Uttar Pradesh, Maharashtra, Telangana, Haryana and Punjab (Table-9 & 10).

Of the total power exchange transactions, top 5 regional entities sold 34.34% of the volume, and these were Himachal Pradesh, Jaypee Karcham Hydro Corporation Ltd., Jindal India Thermal Power Ltd., Meenakshi Energy Pvt. Ltd. and Jindal Power Ltd.. Top 5 regional entities purchased 51.87% of the volume, and these were Gujarat, Punjab, Rajasthan, Telangana and Haryana (Table-11 & 12).

Of the total DSM transactions, top 5 regional entities underdrew 34.48% of the volume, and these were Uttar Pradesh, Maharashtra, Gujarat, Tamil Nadu and Punjab (Table-

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<sup>1</sup> In case of a state, the entities which are “selling” also include generators connected to state grid and the entities which are “buying” also include open access consumers.



13). Top 5 regional entities overdrew 28.74% of the volume, and these were Uttar Pradesh, Punjab, Haryana, NTPC Stations (Eastern Region), NTPC Stations (Western 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 Himachal Pradesh, Thermal Powertech Corporation India Ltd, Jammu & Kashmir, Jaypee Karcham Hydro Corporation Ltd and Jindal India Thermal Power Ltd. Top 5 electricity purchasing regional entities were Telangana, Haryana, Punjab, Maharashtra and Uttar Pradesh.

#### **IV: Congestion<sup>2</sup> on Inter-State Transmission Corridor for Day-Ahead Market on Power Exchanges**

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

In the month of June 2016, congestion occurred in both the power exchanges. The details of congestion are shown in Table-16. The volume of electricity that could not be cleared due to congestion and could not be transacted through power exchanges is the difference between unconstrained cleared volume (volume of electricity that would have been scheduled, had there been no congestion) and actual cleared volume.

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

<sup>3</sup> “Market Splitting” is a mechanism adopted by Power Exchange where the market is split in the event of transmission congestion, into predetermined ( by NLDC) bid areas or zones, which are cleared individually at their respective area prices such that the energy balance in every bid area is reached based upon the demand and supply in individual bid areas and using the available transmission corridor capacity between various bid areas simultaneously”  
As a result of this market splitting the price of electricity in the importing region, where demand for electricity is more than supply, becomes relatively higher than the price of electricity in the exporting region.

During the month, the volume of electricity that could not be cleared in IEX and PXIL due to congestion was 3.19% and 3.38% of the unconstrained cleared volume respectively. In terms of time, congestion occurred was 57% in IEX and 1.35% in PXIL (Table-16).

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

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

**(i) Duration of bilateral contracts:** During July, 2016, a total of 156 bilateral contracts (excluding banking/swap contracts) have been executed by traders for the volume of 942.63 MUs. Figure-7 shows the percentage of contracts categorized according to the period of power supply. It can be observed from the figure that 83.3% of the bilateral contracts were executed for duration of up to one week, 16.7% of the contracts were executed for duration of more than a week and up to one month, and no contracts were executed for more than one month.

During the month, 159 banking/swapping bilateral contracts were also executed for the volume of 1379.03MUs.

**(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 July, 2016 to October, 2016 based on bilateral contracts<sup>4</sup> executed till July, 2016. Forward curves have been drawn for the contracts executed in July, 2016 and June, 2016 for the purpose of comparison. It is observed that the forward prices for the most of the contracts

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

executed in July, 2016 are relatively higher during 11<sup>th</sup> July - 31<sup>st</sup> July, 2016 and 30<sup>th</sup> August - 4<sup>th</sup> October, 2016 than the forward prices of contracts executed in June, 2016.

## **VI: Volume and Price of Renewable Energy Certificates (RECs)**

The concept of Renewable Energy Certificates (RECs) seeks to address mismatch between availability of renewable energy and the requirement of the obligated entities to meet their renewable purchase obligation by purchasing green attributes of renewable energy remotely located in the form of RECs. The REC mechanism is a market based instrument, to promote renewable sources of energy and development of electricity market.

One REC is equivalent to 1 MWh electricity injected into the grid from renewable energy sources. The REC is exchanged only in the power exchanges approved by CERC within the band of a floor price and forbearance (ceiling) price as notified by CERC from time to time. The first REC trading session was held on power exchanges in March, 2011.

The details of REC transactions for the month of June, 2016 are shown in Table-20. The market clearing volume of solar RECs transacted on IEX and PXIL were 35649 and 15,366 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 350362 and 67,064 respectively and the market clearing price of these RECs was ₹1500/MWh on both the power exchanges.

The gap between the volume of buy and sell bids of RECs placed through power exchanges shows that there was less demand for both solar and non-solar RECs. For Solar RECs, the ratio of buy bids to sell bids was 0.012 and 0.023 for IEX and PXIL respectively. For non-solar RECs, the ratio of buy bids to sell bids was 0.040 and 0.015 for IEX and PXIL respectively.

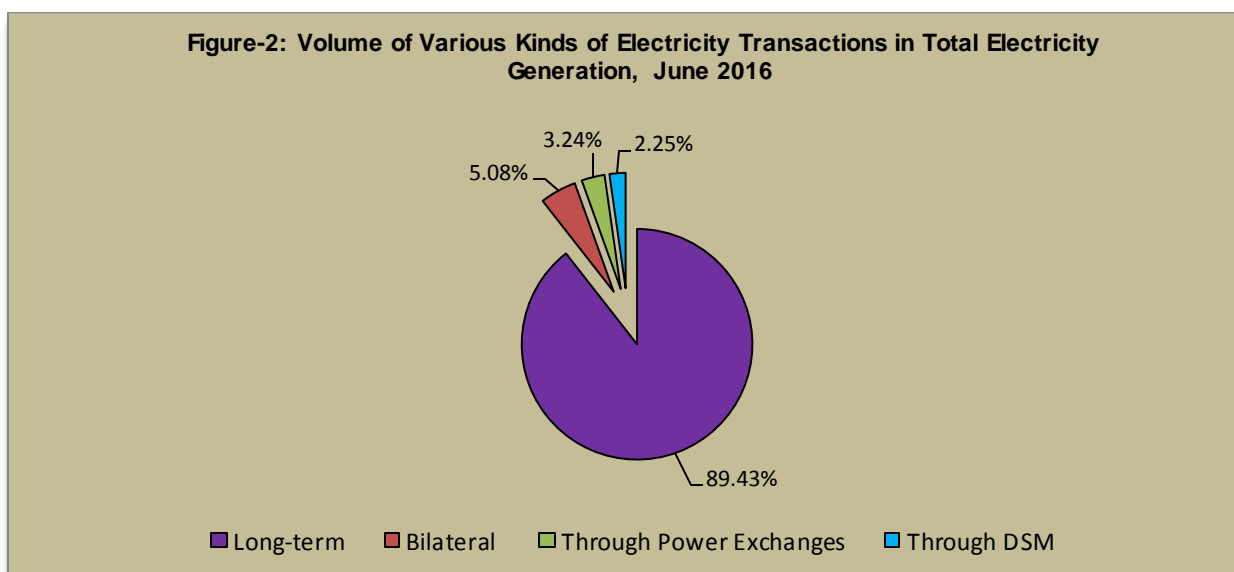
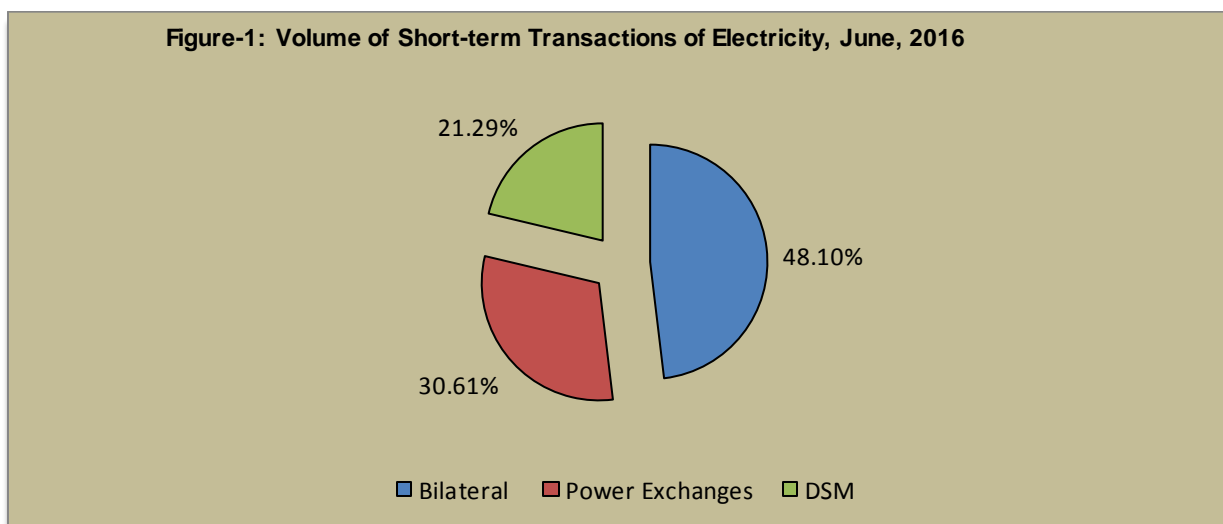
## VII: Inferences:

- The volume of short-term transactions of electricity to total electricity generation was 10.57%.
- Of the total short-term transactions of electricity, 48.10% was transacted through bilateral (through traders and term ahead contracts on power exchanges and directly by distribution companies), followed by 30.61% through power exchanges and 21.29% through DSM.
- Top 5 trading licensees had a share of 76.01% 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 0.1740, indicating moderate concentration of market power.
- The weighted average price of electricity transacted through trading licensees was ₹3.43/kWh. The weighted average prices of electricity transacted through IEX and PXIL were ₹2.42/kWh and ₹2.31/kWh respectively.
- The average price of electricity transacted through DSM was ₹1.78/kWh.
- Top 5 electricity selling regional entities were Himachal Pradesh, Thermal Powertech Corporation India Ltd, Jammu & Kashmir, Jaypee Karcham Hydro Corporation Ltd and Jindal India Thermal Power Ltd. Top 5 electricity purchasing regional entities were Telangana, Haryana, Punjab, Maharashtra and Uttar Pradesh.
- The volume of electricity that could not be cleared due to congestion was 3.19% and 3.38% of the unconstrained cleared volume in IEX and PXIL, respectively. In terms of time, congestion occurred was 57% of the time in IEX and 1.35% of the time in PXIL.
- In July 2016, 83.3% of the bilateral contracts were executed for duration of up to one week, 16.7% of the contracts were executed for duration of more than a week and upto one month, and no contracts were executed for a period of more than one month.

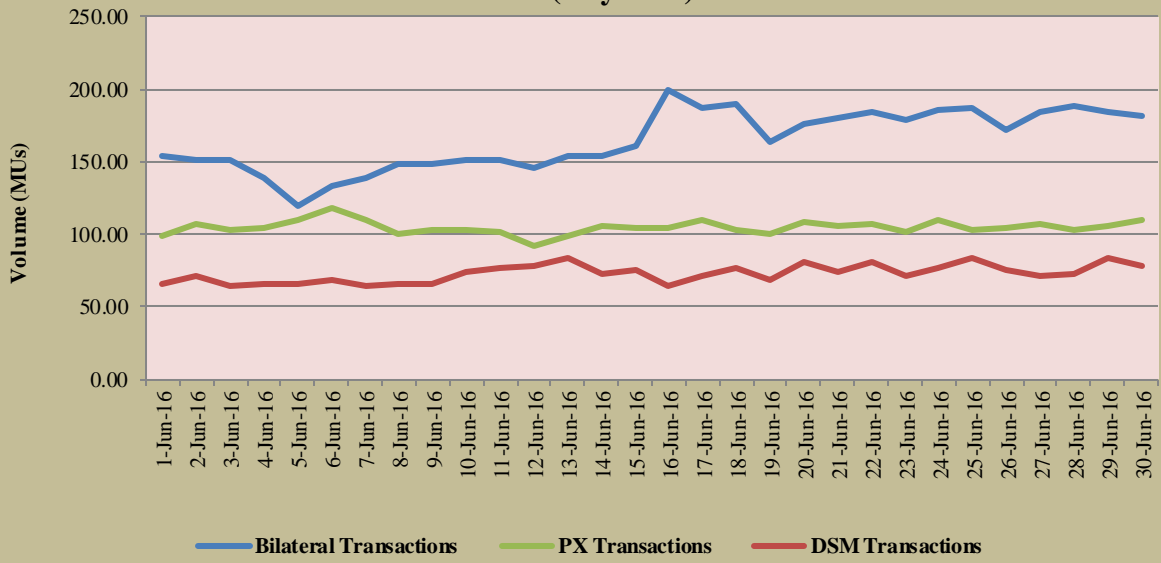
- The forward prices for the most of the contracts executed in July, 2016 are relatively higher during 11<sup>th</sup> July - 31<sup>st</sup> July, 2016 and 30<sup>th</sup> August - 4<sup>th</sup> October, 2016 than the forward prices of contracts executed in June, 2016.
- The market clearing volume of solar RECs transacted on IEX and PXIL were 35649 and 15,366 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 350362 and 67,064 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), JUNE 2016				
Sr.No	Short-term transactions	Volume (MUs)	% to Volume of short-term transactions	% to Total Generation
1	Bilateral	4945.07	48.10	5.08
	(i) Through Traders and PXs	3015.38	29.33	3.10
	(ii) Direct	1929.70	18.77	1.98
2	Through Power Exchanges	3146.41	30.61	3.24
	(i) IEX	3143.60	30.58	3.23
	(ii) PXIL	2.81	0.03	0.003
3	Through DSM	2188.93	21.29	2.25
	<b>Total</b>	<b>10280.42</b>	-	<b>10.57</b>
	<b>Total Generation</b>	<b>97254.66</b>	-	-

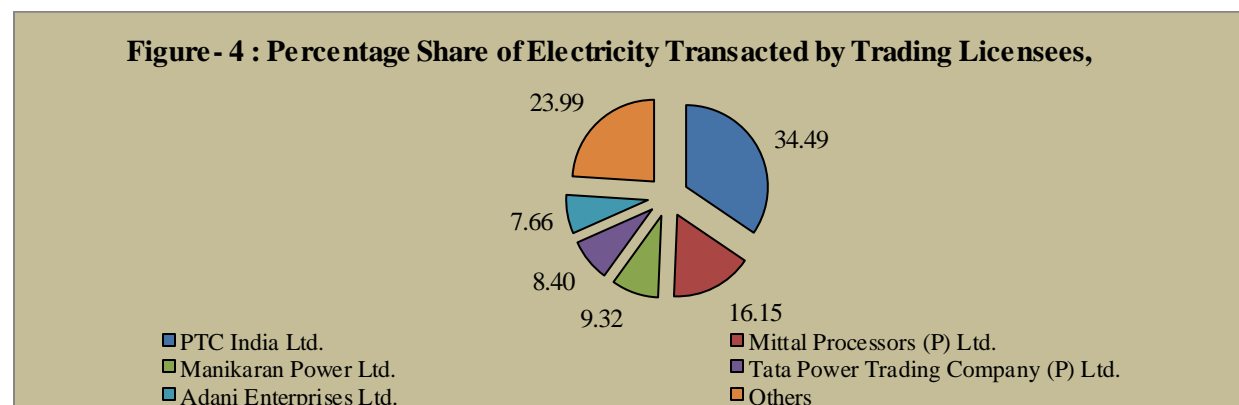
Source: NLDC



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



<b>Table-2: PERCENTAGE SHARE OF ELECTRICITY TRANSACTED BY TRADING LICENSEES, JUNE 2016</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.	34.49	0.1190
2	Mittal Processors (P) Ltd.	16.15	0.0261
3	Manikaran Power Ltd.	9.32	0.0087
4	Tata Power Trading Company (P) Ltd.	8.40	0.0071
5	Adani Enterprises Ltd.	7.66	0.0059
6	Arunachal Pradesh Power Corporation ltd	5.67	0.0032
7	NTPC Vidyut Vyapar Nigam Ltd.	4.34	0.0019
8	GMR Energy Trading Ltd.	2.57	0.0007
9	Knowledge Infrastructure Systems (P) Ltd	2.36	0.0006
10	National Energy Trading & Services Ltd.	1.59	0.0003
11	JSW Power Trading Company Ltd	1.54	0.0002
12	Instinct Infra & Power Ltd.	1.15	0.0001
13	SN Power Markets Pvt. Ltd.	1.10	0.0001
14	Jaiprakash Associates Ltd.	1.03	0.0001
15	RPG Power Trading Company Ltd.	0.68	0.0001
16	Shree Cement Ltd.	0.53	0.0000
17	My Home Power Private Ltd.	0.49	0.0000
18	Essar Electric Power Development Corp. Ltd.	0.29	0.0000
19	Customized Energy Solutions India Ltd.	0.27	0.0000
20	Gita Power & Infrastructure Private Ltd	0.20	0.0000
21	Phillip Commodities India (P) Ltd.	0.17	0.0000
22	Ambitious Power Trading Company Ltd.	0.02	0.0000
<b>TOTAL</b>		<b>100.00%</b>	<b>0.1740</b>
<b>Top 5 trading licensees</b>		<b>76.01%</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,  
JUNE 2016**

Sr.No	Item	Sale Price of Traders (₹/kWh)
1	Minimum	0.03
2	Maximum	5.35
3	Weighted Average	3.43

Source: Information submitted by trading licensees

**Table-4: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS (TIME-WISE),  
JUNE 2016**

Sr.No	Period of Trade	Sale Price of Traders (₹/kWh)
1	RTC	3.50
2	PEAK	-
3	OFF PEAK	2.76

Source: Information submitted by trading licensees

**Table-5: PRICE OF ELECTRICITY TRANSACTED THROUGH POWER EXCHANGES,  
JUNE 2016**

Sr.No	ACP	Price in IEX (₹/kWh)	Price in PXIL (₹/kWh)
1	Minimum	0.70	1.95
2	Maximum	6.00	3.00
3	Weighted Average	2.42	2.31

Source: Information submitted by IEX and PXIL

**Table-6: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF IEX,  
JUNE 2016**

Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	14.32	3.16
2	Day Ahead Contingency Contracts	16.76	3.10
	<b>Total</b>	<b>31.09</b>	<b>3.13</b>

Source: IEX

**Table-7: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF PXIL,  
JUNE 2016**

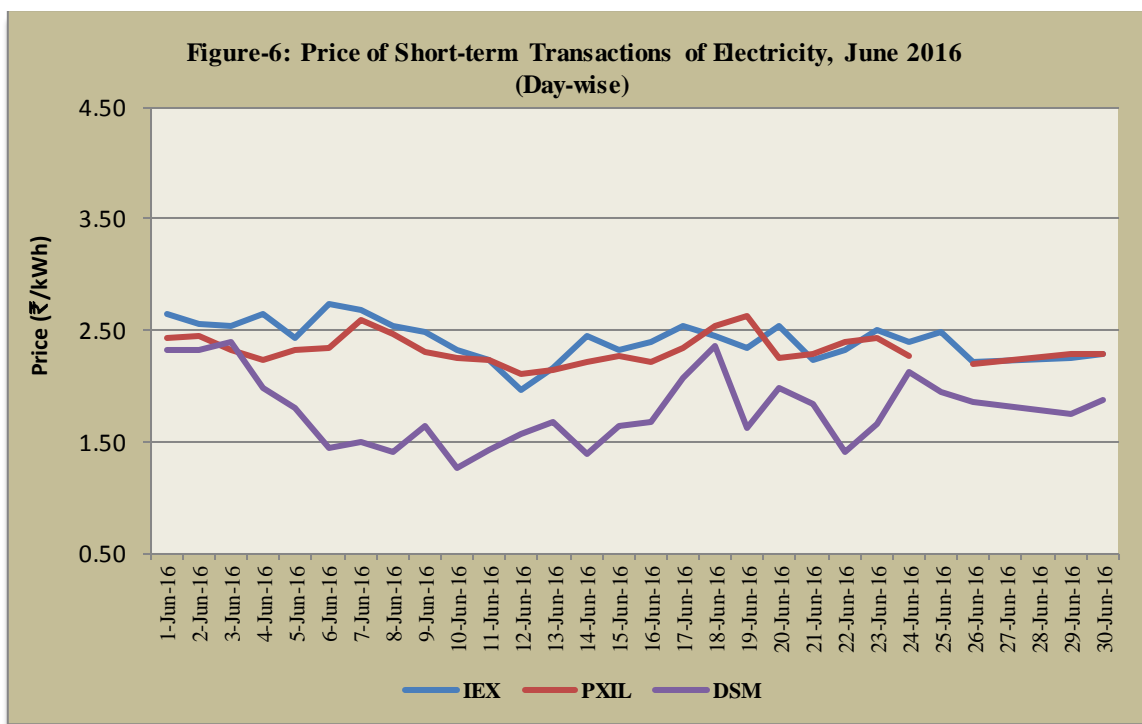
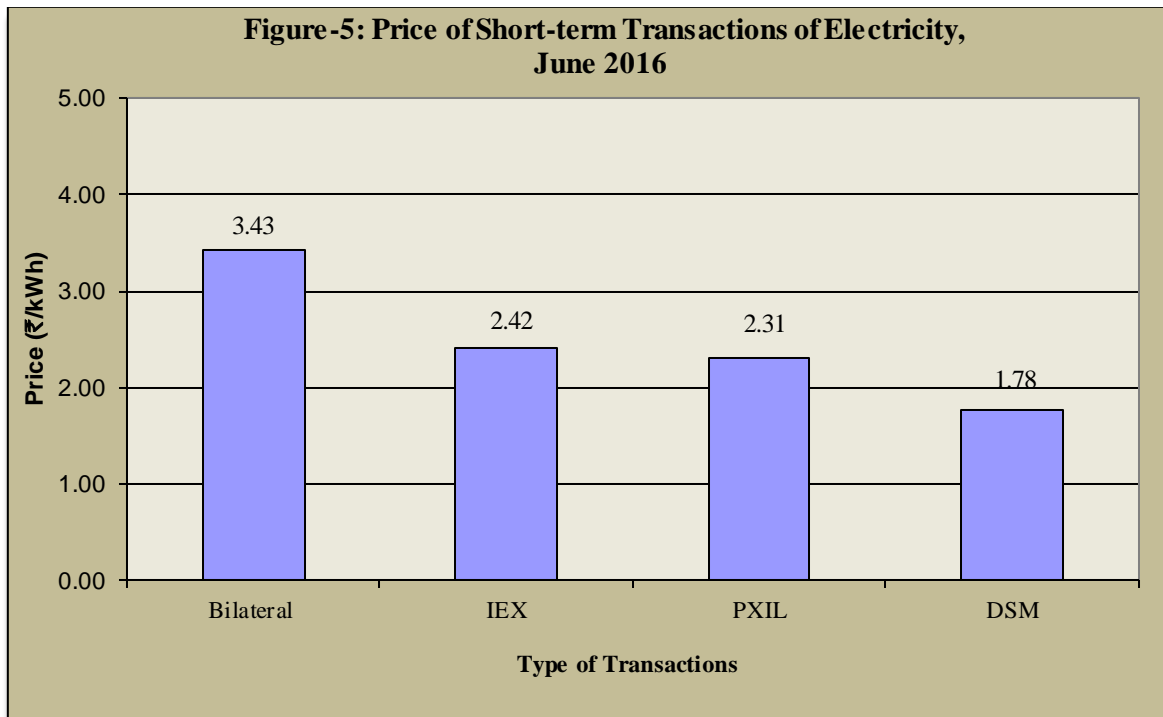
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	8.05	2.67
2	Daily Contracts	-	-
	<b>Total</b>	<b>8.05</b>	<b>2.67</b>

Source: PXIL

**Table-8: PRICE OF ELECTRICITY TRANSACTED THROUGH DSM,  
JUNE 2016**

Sr.No	Item	Price in All India Grid (₹/kWh)
1	Minimum	0.00
2	Maximum	8.03
3	Average	1.78

Source: NLDC



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

<b>Name of the Entity</b>	<b>Volume of Sale (MUs)</b>	<b>% of Volume</b>
HIMACHAL PRADESH	604.87	12.90
THERMAL POWERTECH	526.70	11.23
J & K	479.43	10.22
RAJASTHAN	280.07	5.97
GMR KAMALANGA	278.87	5.95
DB POWER	261.01	5.57
GUJARAT	244.63	5.22
JITPL	217.23	4.63
KORBA WEST POWER	181.80	3.88
CHHATTISGARH	174.86	3.73
ESSAR POWER	168.96	3.60
SHREE CEMENT	164.48	3.51
ADHUNIK POWER LTD	159.28	3.40
LANKO KONDAPALLI	117.10	2.50
KARCHAM WANGTOO	108.00	2.30
JINDAL POWER	99.88	2.13
MP	76.37	1.63
STERLITE	58.67	1.25
ASSAM	44.51	0.95
AD HYDRO	40.86	0.87
ILF&S	38.01	0.81
SIMHAPURI	31.49	0.67
DAGACHU	31.15	0.66
MEGHALAYA	29.48	0.63
UTTAR PRADESH	27.72	0.59
DVC	26.22	0.56
COASTGEN	25.10	0.54
NSPCL	24.77	0.53
ODISHA	22.98	0.49
JINDAL STAGE-II	20.81	0.44
MANIPUR	17.19	0.37
ANDHRA PRADESH	13.06	0.28
KARNATAKA	12.68	0.27
WEST BENGAL	12.33	0.26
DELHI	11.40	0.24
TAMIL NADU	11.05	0.24
SIKKIM	10.80	0.23
MEENAKSHI	10.05	0.21
LANKO_AMK	8.25	0.18
ACBIL	7.29	0.16
TELANGANA	7.18	0.15
MAHARASHTRA	1.33	0.03
UTTARAKHAND	0.78	0.02
TRIPURA	0.37	0.01
<b>TOTAL</b>	<b>4689.11</b>	<b>100.00</b>
<b>Volume Sold by top 5 Regional Entities</b>	<b>2169.94</b>	<b>46.28</b>

<b>Table-10: VOLUME OF ELECTRICITY PURCHASED THROUGH BILATERAL, JUNE 2016</b>		
<b>Name of the Entity</b>	<b>Volume of Purchase (MUs)</b>	<b>% of Volume</b>
UTTAR PRADESH	734.98	14.86
MAHARASHTRA	666.43	13.48
TELANGANA	661.95	13.39
HARYANA	593.75	12.01
PUNJAB	429.16	8.68
DELHI	389.16	7.87
WEST BENGAL	351.76	7.11
BIHAR	287.40	5.81
ESSAR STEEL	167.60	3.39
JHARKHAND	159.28	3.22
CHHATTISGARH	134.92	2.73
ANDHRA PRADESH	85.39	1.73
ODISHA	63.79	1.29
NEPAL(NVFN)	54.00	1.09
GUJARAT	46.92	0.95
TAMIL NADU	42.97	0.87
UTTARAKHAND	38.72	0.78
ASSAM	11.23	0.23
MP	10.99	0.22
CHANDIGARH	10.80	0.22
MEGHALAYA	1.92	0.04
GOA	0.91	0.02
MANIPUR	0.59	0.01
KERALA	0.45	0.01
<b>TOTAL</b>	<b>4945.07</b>	<b>100.00</b>
<b>Volume Purchased by top 5 Regional Entities</b>	<b>3086.28</b>	<b>62.41</b>

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

<b>Name of the Entity</b>	<b>Volume of Sale (MUs)</b>	<b>% of Volume</b>
HIMACHAL PRADESH	318.08	10.11
KARCHAM WANGTOO	304.10	9.67
JITPL	174.01	5.53
MEENAKSHI	150.30	4.78
JINDAL POWER	133.94	4.26
GUJARAT	128.34	4.08
DB POWER	113.14	3.60
MP	105.45	3.35
STERLITE	90.93	2.89
THERMAL POWERTECH	90.10	2.86
KORBA WEST POWER	84.97	2.70
RAJASTHAN	76.23	2.42
SIMHAPURI	74.86	2.38
TELANGANA	69.39	2.21
JAYPEE NIGRIE	68.26	2.17
NHPC STATIONS	64.62	2.05
CHUZACHEN HEP	57.90	1.84
CHHATTISGARH	57.67	1.83
AD HYDRO	56.72	1.80
DELHI	54.17	1.72
NEEPCO STATIONS	51.02	1.62
GMR KAMALANGA	49.74	1.58
SIKKIM	48.71	1.55
JORETHANG	44.32	1.41
JHABUA POWER_MP	43.08	1.37
ACBIL	39.14	1.24
MARUTI COAL	37.67	1.20
TRIPURA	37.24	1.18
WEST BENGAL	36.35	1.16
ASSAM	36.23	1.15
SASAN UMPP	34.47	1.10
J & K	31.86	1.01
ODISHA	30.75	0.98
MANIPUR	30.26	0.96
NJPC	27.00	0.86
MIZORAM	24.92	0.79
ANDHRA PRADESH	23.87	0.76
HARYANA	22.59	0.72
DVC	22.40	0.71

KARNATAKA	22.11	0.70
MAHARASHTRA	21.45	0.68
MEGHALAYA	19.58	0.62
BALCO	19.19	0.61
SHREE CEMENT	17.28	0.55
ARUNACHAL PRADESH	15.54	0.49
ILF&S	14.31	0.45
KERALA	13.09	0.42
TAMIL NADU	10.63	0.34
NTPC STATIONS	7.50	0.24
DCPP(DONGA MAHUA CAPTIVE POWER PLANT)	7.22	0.23
MALANA	6.37	0.20
NAGALAND	5.25	0.17
DHARIWAL POWER	4.81	0.15
LANCO BUDHIL	4.34	0.14
COASTGEN	3.79	0.12
GOA	2.82	0.09
ADHUNIK POWER LTD	2.13	0.07
SPECTRUM	1.50	0.05
NLC	1.41	0.04
NTPC STATIONS	0.86	0.03
JINDAL STAGE-II	0.43	0.01
NTPC STATIONS	0.04	0.00
<b>TOTAL</b>	<b>3146.41</b>	<b>100.00</b>
<b>Volume sold by top 5 Regional Entities</b>	<b>1080.43</b>	<b>34.34</b>

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

<b>Name of the Entity</b>	<b>Volume of Purchase (MUs)</b>	<b>% of Volume</b>
GUJARAT	431.89	13.73
PUNJAB	362.28	11.51
RAJASTHAN	359.46	11.42
TELANGANA	252.23	8.02
HARYANA	226.20	7.19
KARNATAKA	198.73	6.32
DADRA & NAGAR HAVELI	173.57	5.52
MAHARASHTRA	167.11	5.31
ESSAR STEEL	143.79	4.57
DELHI	123.56	3.93
WEST BENGAL	118.93	3.78
ANDHRA PRADESH	108.70	3.45
BIHAR	80.59	2.56
UTTARAKHAND	72.61	2.31
MP	56.57	1.80
ASSAM	51.32	1.63
KERALA	41.69	1.33
DAMAN AND DIU	39.26	1.25
UTTAR PRADESH	28.56	0.91
TAMIL NADU	19.70	0.63
CHHATTISGARH	19.18	0.61
GOA	17.26	0.55
HIMACHAL PRADESH	14.90	0.47
J & K	12.06	0.38
ODISHA	11.21	0.36
CHANDIGARH	7.02	0.22
MEGHALAYA	5.29	0.17
PONDICHERRY	2.31	0.07
ARUNACHAL PRADESH	0.38	0.01
NAGALAND	0.06	0.00
<b>TOTAL</b>	<b>3146.41</b>	<b>100.00</b>
<b>Volume purchased by top 5 Regional Entities</b>	<b>1632.05</b>	<b>51.87</b>

<b>Table-13: VOLUME OF ELECTRICITY UNDER DRAWAL (EXPORTED) THROUGH DSM, JUNE 2016</b>		
<b>Name of the Entity</b>	<b>Volume of Under drawal (MUs)</b>	<b>% of Volume</b>
UTTAR PRADESH	138.01	7.25
MAHARASHTRA	137.41	7.22
GUJARAT	131.93	6.93
TAMIL NADU	131.30	6.90
PUNJAB	117.45	6.17
NTPC STATIONS WESTERN REGION	107.55	5.65
HARYANA	99.63	5.24
MP	81.63	4.29
ANDHRA PRADESH	77.44	4.07
RAJASTHAN	69.61	3.66
KARNATAKA	56.92	2.99
TELANGANA	51.37	2.70
HIMACHAL PRADESH	48.70	2.56
BIHAR	42.46	2.23
NHPC STATIONS	41.83	2.20
NTPC STATIONS NORTHERN REGION	31.11	1.64
DELHI	31.01	1.63
CHANDIGARH	30.75	1.62
NEEPCO STATIONS	28.52	1.50
CHHATTISGARH	25.59	1.34
DVC	25.54	1.34
JHARKHAND	25.42	1.34
UTTARAKHAND	24.32	1.28
NTPC STATIONS SOUTHERN REGION	20.99	1.10
WEST BENGAL	20.16	1.06
NTPC STATIONS EASTERN REGION	19.64	1.03
ESSAR STEEL	19.07	1.00
GOA	16.09	0.85
ODISHA	15.64	0.82
DADRA & NAGAR HAVELI	11.34	0.60
TEESTA HEP	11.20	0.59
PONDICHERRY	10.76	0.57
MEGHALAYA	10.54	0.55
GMR KAMALANGA	9.31	0.49
THERMAL POWERTECH	9.07	0.48
MAITHON POWER LTD	8.33	0.44
KARCHAM WANGTOO	8.06	0.42
EMCO	7.99	0.42
AD HYDRO	7.25	0.38
JITPL	7.04	0.37
ILF&S	6.63	0.35
CGPL(COASTAL GUJARAT POWER LTD)	6.56	0.34
NJPC	6.36	0.33
JAYPEE NIGRIE	6.15	0.32



ASSAM	6.14	0.32
NSPCL	5.97	0.31
JORETHANG	5.82	0.31
CHUZACHEN HEP	5.68	0.30
KSK MAHANADI	4.82	0.25
TRIPURA	4.81	0.25
URI-2	4.34	0.23
JINDAL POWER	4.32	0.23
KERALA	3.89	0.20
SIKKIM	3.47	0.18
STERLITE	3.34	0.18
NEPAL(NVVN)	3.27	0.17
RANGIT HEP	3.23	0.17
NAGALAND	3.09	0.16
DB POWER	3.07	0.16
COASTGEN	2.99	0.16
ACBIL	2.99	0.16
LANKO_AMK	2.94	0.15
DAGACHU	2.78	0.15
BALCO	2.72	0.14
ARUNACHAL PRADESH	2.44	0.13
DONGA MAHUA CAPTIVE POWER PLANT	2.42	0.13
MANIPUR	2.35	0.12
ADHUNIK POWER LTD	2.27	0.12
RGPPL(DABHOL)	2.23	0.12
SIMHAPURI	2.14	0.11
MIZORAM	2.10	0.11
MB POWER	1.95	0.10
MEENAKSHI	1.94	0.10
ESSAR POWER	1.88	0.10
SHREE CEMENT	1.67	0.09
LANCO BUDHIL	1.54	0.08
DAMAN AND DIU	1.39	0.07
JHABUA POWER_MP	1.06	0.06
KORBA WEST POWER	0.73	0.04
DHARIWAL POWER	0.53	0.03
MALANA	0.35	0.02
LOKTAK	0.35	0.02
ADANI HVDC	0.05	0.00
VANDANA VIDYUT	0.04	0.00
LANKO KONDAPALLI	0.02	0.00
<b>TOTAL</b>	<b>1902.80</b>	<b>100.00</b>
<b>Volume Exported by top 5 Regional Entities</b>	<b>656.09</b>	<b>34.48</b>

<b>Table-14: VOLUME OF ELECTRICITY OVER DRAWAL (IMPORTED) THROUGH DSM, JUNE 2016</b>		
<b>Name of the Entity</b>	<b>Volume of Over drawal (MUs)</b>	<b>% of Volume</b>
UTTAR PRADESH	138.01	7.34
PUNJAB	117.45	6.25
HARYANA	99.63	5.30
NTPC STATIONS EASTERN REGION	95.18	5.06
NTPC STATIONS WESTERN REGION	90.26	4.80
NTPC STATIONS NORTHERN REGION	88.89	4.73
CHHATTISGARH	85.03	4.52
RAJASTHAN	69.61	3.70
MAHARASHTRA	68.09	3.62
KARNATAKA	63.09	3.36
WEST BENGAL	56.05	2.98
ODISHA	54.06	2.87
BIHAR	51.37	2.73
KERALA	50.53	2.69
HIMACHAL PRADESH	48.70	2.59
ASSAM	43.22	2.30
DVC	41.13	2.19
TAMIL NADU	38.83	2.06
ANDHRA PRADESH	32.19	1.71
DELHI	31.01	1.65
CHANDIGARH	30.75	1.64
NTPC STATIONS SOUTHERN REGION	30.00	1.60
JHARKHAND	25.74	1.37
ESSAR STEEL	25.29	1.35
TELANGANA	25.15	1.34
BALCO	24.75	1.32
UTTARAKHAND	24.32	1.29
MP	21.83	1.16
GUJARAT	17.43	0.93
STERLITE	16.67	0.89
JITPL	15.64	0.83
TRIPURA	14.92	0.79
GOA	14.04	0.75
JAYPEE NIGRIE	13.80	0.73
DAMAN AND DIU	11.28	0.60
LANKO KONDAPALLI	10.90	0.58
CGPL(COASTAL GUJARAT POWER LTD)	10.66	0.57
DB POWER	9.09	0.48
NHPC STATIONS	8.74	0.46
ARUNACHAL PRADESH	8.20	0.44
MAITHON POWER LTD	8.14	0.43
MB POWER	8.00	0.43
EMCO	7.98	0.42
DAGACHU	7.87	0.42

GMR KAMALANGA	7.63	0.41
JHABUA POWER_MP	7.61	0.40
SIKKIM	6.63	0.35
MANIPUR	6.38	0.34
JORETHANG	6.18	0.33
ESSAR POWER	5.87	0.31
AD HYDRO	5.68	0.30
SHREE CEMENT	5.16	0.27
NSPCL	5.16	0.27
KORBA WEST POWER	5.11	0.27
NAGALAND	4.68	0.25
JINDAL POWER	4.51	0.24
DGEN MEGA POWER	4.02	0.21
DCPP (DONGA MAHUA CAPTIVE POWER PLANT)	3.89	0.21
LANCO BUDHIL	3.78	0.20
NEEPCO STATIONS	3.61	0.19
RGPPPL(DABHOL)	3.48	0.18
MEGHALAYA	3.33	0.18
GMR CHATTISGARH	3.19	0.17
LOKTAK	3.17	0.17
THERMAL POWERTECH	2.74	0.15
KSK MAHANADI	2.71	0.14
PONDICHERRY	2.51	0.13
COASTGEN	2.44	0.13
NJPC	2.24	0.12
ACBIL	2.09	0.11
MIZORAM	1.91	0.10
KARCHAM WANGTOO	1.79	0.10
ADHUNIK POWER LTD	1.66	0.09
CHUZACHEN HEP	1.48	0.08
SPECTRUM	1.40	0.07
NEPAL(NVVN)	0.75	0.04
LANKO_AMK	0.73	0.04
MEENAKSHI	0.70	0.04
DADRA & NAGAR HAVELI	0.63	0.03
ILF&S	0.58	0.03
URI-2	0.34	0.02
MALANA	0.33	0.02
RANGIT HEP	0.32	0.02
DHARIWAL POWER	0.31	0.02
SIMHAPURI	0.20	0.01
TEESTA HEP	0.05	0.00
<b>TOTAL</b>	<b>1880.51</b>	<b>100.00</b>
<b>Volume Imported by top 5 Regional Entities</b>	<b>540.53</b>	<b>28.74</b>

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

<b>Sr.No.</b>	<b>Name of the Entity</b>	<b>Total volume of net short-term transactions of electricity*</b>
1	TELANGANA	811.38
2	HARYANA	797.37
3	PUNJAB	791.43
4	MAHARASHTRA	741.45
5	UTTAR PRADESH	735.83
6	WEST BENGAL	457.90
7	DELHI	447.15
8	BIHAR	376.90
9	ESSAR STEEL	317.61
10	KARNATAKA	170.11
11	DADRA & NAGAR HAVELI	162.86
12	JHARKHAND	159.60
13	ANDHRA PRADESH	111.91
14	UTTARAKHAND	110.55
15	KERALA	75.70
16	NTPC STATIONS	75.53
17	ODISHA	59.69
18	NEPAL(NVVN)	51.48
19	NTPC STATIONS	50.28
20	DAMAN AND DIU	49.15
21	ASSAM	18.89
22	CHANDIGARH	17.82
23	GOA	13.31
24	NTPC STATIONS	8.97
25	MB POWER	6.05
26	CGPL(COASTAL GUJARAT POWER LTD)	4.10
27	DGEN MEGA POWER	4.02
28	GMR CHHATTISGARH	3.19
29	RAJASTHAN	3.16
30	BALCO	2.85
31	LOKTAK	2.81
32	RGPPL(DABHOL)	1.24
39	EMCO	-0.01
40	VANDANA VIDYUT	-0.04
41	ADANI HVDC	-0.05
42	SPECTRUM	-0.10
43	MAITHON POWER LTD	-0.19
44	LANCO BUDHIL	-2.10
45	KSK MAHANADI	-2.11
46	RANGIT HEP	-2.91
47	NAGALAND	-3.60
48	URI-2	-4.00
49	DHARIWAL POWER	-5.03
50	DCPP(DONGA MAHUA CAPTIVE POWER PLANT)	-5.75
51	PONDICHERY	-5.94
52	MALANA	-6.40
53	GUJARAT	-8.65
54	ARUNACHAL PRADESH	-9.40
55	LANKO_AMK	-10.47

56	TEESTA HEP	-11.15
57	NTPC STATIONS	-18.15
58	CHHATTISGARH	-18.98
59	JINDAL STAGE-II	-21.24
60	MIZORAM	-25.10
61	NSPCL	-25.58
62	DAGACHU	-26.06
63	TRIPURA	-27.49
64	COASTGEN	-29.44
65	NJPC	-31.12
66	DVC	-33.02
67	JHABUA POWER_MP	-36.53
68	MARUTI COAL	-37.67
69	MANIPUR	-42.83
70	JORETHANG	-43.97
71	ACBIL	-47.32
72	MEGHALAYA	-49.06
73	TAMIL NADU	-51.48
74	SIKKIM	-56.35
75	ILF&S	-58.37
76	JAYPEE NIGRIE	-60.60
77	CHUZACHEN HEP	-62.09
78	NEEPCO STATIONS	-75.93
79	NHPC STATIONS	-97.71
80	AD HYDRO	-99.15
81	LANKO KONDAPALLI	-106.22
82	SIMHAPURI	-108.29
83	STERLITE	-136.27
84	MEENAKSHI	-161.60
85	ADHUNIK POWER LTD	-162.02
86	ESSAR POWER	-164.97
87	MP	-174.06
88	SHREE CEMENT	-178.28
89	JINDAL POWER	-233.62
90	KORBA WEST POWER	-262.39
91	GMR KAMALANGA	-330.30
92	DB POWER	-368.13
93	JITPL	-382.64
94	KARCHAM WANGTOO	-418.37
95	J & K	-499.23
96	THERMAL POWERTECH	-623.13
97	HIMACHAL PRADESH	-908.05

*\* 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, JUNE 2016</b>			
	<b>Details of Congestion</b>	<b>IEX</b>	<b>PXIL</b>
A	Unconstrained Cleared Volume* (MUs)	3247.13	2.91
B	Actual Cleared Volume and hence scheduled (MUs)	3143.60	2.81
C	Volume of electricity that could not be cleared and hence not scheduled because of congestion (MUs) (A-B)	103.53	0.10
D	Volume of electricity that could not be cleared as % to Unconstrained Cleared Volume	3.19%	3.38%
E	Percentage of the time congestion occurred during the month (Number of hours congestion occurred/Total number of hours in the month)	57.00%	1.35%
F	Congestion occurrence (%) time block wise		
	0.00 - 6.00 hours	21.98%	0.00%
	6.00 - 12.00 hours	15.53%	0.00%
	12.00 - 18.00 hours	32.11%	0.00%
	18.00 - 24.00 hours	30.39%	100.00%
<i>* This power would have been scheduled had there been no congestion.</i>			
Source: IEX , PXIL & NLDC			

**Table-17: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY IN INDIA (DAY-WISE) (MUs), JUNE 2016**

Date	Bilateral		Power Exchange (Area Clearing Volume# of Day Ahead Market)		Deviation Settlement (Over Draw+Under Generation)	Total Electricity Generation (MU) as given at CEA Website*
	Through Traders and PXs**	Direct	IEX	PXIL		
1-Jun-16	90.79	62.82	98.82	0.15	65.67	3240.96
2-Jun-16	90.76	60.97	107.01	0.15	71.75	3280.78
3-Jun-16	92.22	58.66	103.00	0.03	64.61	3367.40
4-Jun-16	87.04	51.90	103.88	0.05	65.87	3355.74
5-Jun-16	73.86	45.35	109.85	0.03	66.00	3224.96
6-Jun-16	82.42	51.15	118.31	0.03	68.42	3276.50
7-Jun-16	85.48	53.44	109.95	0.03	64.44	3275.16
8-Jun-16	88.25	59.99	100.89	0.04	65.93	3259.51
9-Jun-16	88.89	60.04	103.42	0.04	65.22	3244.32
10-Jun-16	89.39	61.58	103.40	0.04	74.63	3231.27
11-Jun-16	87.40	63.48	101.80	0.03	76.31	3111.72
12-Jun-16	91.87	54.27	91.59	0.03	78.44	3035.17
13-Jun-16	91.13	63.09	99.41	0.03	83.68	3126.05
14-Jun-16	90.83	62.71	106.10	0.03	72.88	3139.99
15-Jun-16	93.73	67.37	104.99	0.03	74.89	3188.72
16-Jun-16	118.88	81.07	104.53	0.04	63.82	3260.88
17-Jun-16	112.98	74.48	109.35	0.16	70.90	3339.23
18-Jun-16	107.71	81.81	103.47	0.03	76.36	3324.00
19-Jun-16	95.74	68.17	100.26	0.05	67.99	3235.46
20-Jun-16	100.84	75.11	108.13	0.13	81.07	3338.83
21-Jun-16	108.37	72.58	105.88	0.18	74.72	3299.77
22-Jun-16	114.33	69.87	107.15	0.08	80.99	3218.19
23-Jun-16	111.29	67.82	102.10	0.03	71.92	3241.33
24-Jun-16	115.04	70.28	109.38	0.04	77.15	3271.29
25-Jun-16	124.12	63.03	102.68	0.00	83.77	3263.73
26-Jun-16	111.18	60.54	103.80	0.24	75.75	3184.56
27-Jun-16	117.37	67.21	106.89	0.24	71.46	3226.44
28-Jun-16	121.37	67.74	102.43	0.29	72.34	3189.05
29-Jun-16	115.43	68.37	105.38	0.27	84.08	3240.50
30-Jun-16	116.66	64.79	109.74	0.33	77.88	3263.15
<b>Total</b>	<b>3015.38</b>	<b>1929.70</b>	<b>3143.60</b>	<b>2.81</b>	<b>2188.93</b>	<b>97254.66</b>

Source: NLDC

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

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

# Area Clearing Volume represents the scheduled volume of all the bid areas.

Table-18: PRICE OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (DAY-WISE)( ₹/kWh), JUNE 2016									
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-Jun-16	0.80	5.33	2.64	2.23	2.51	2.43	0.36	5.74	2.33
2-Jun-16	0.80	5.00	2.56	2.27	2.51	2.44	0.00	5.11	2.32
3-Jun-16	0.70	4.50	2.55	2.29	2.51	2.32	0.71	6.36	2.40
4-Jun-16	1.35	5.00	2.65	2.24	2.24	2.24	0.00	3.45	1.98
5-Jun-16	1.25	3.52	2.43	2.32	2.32	2.32	0.00	3.45	1.80
6-Jun-16	1.67	3.72	2.73	2.34	2.34	2.34	0.00	3.24	1.45
7-Jun-16	1.71	5.10	2.69	2.60	2.60	2.60	0.00	3.45	1.50
8-Jun-16	1.00	4.50	2.54	2.46	2.46	2.46	0.00	3.45	1.42
9-Jun-16	1.25	3.50	2.48	2.31	2.31	2.31	0.00	3.45	1.64
10-Jun-16	1.25	3.30	2.32	2.26	2.26	2.26	0.00	5.32	1.26
11-Jun-16	1.00	4.20	2.23	2.24	2.24	2.24	0.00	3.24	1.42
12-Jun-16	0.80	3.46	1.96	2.10	2.10	2.10	0.00	5.74	1.57
13-Jun-16	0.90	3.50	2.17	2.15	2.15	2.15	0.00	4.91	1.68
14-Jun-16	1.11	4.50	2.46	2.22	2.22	2.22	0.00	5.11	1.39
15-Jun-16	1.00	3.46	2.33	2.27	2.27	2.27	0.00	5.95	1.64
16-Jun-16	1.89	3.50	2.40	2.21	2.21	2.21	0.00	8.03	1.67
17-Jun-16	1.80	3.50	2.54	2.30	2.62	2.34	0.00	5.95	2.06
18-Jun-16	1.89	3.50	2.45	2.53	2.53	2.53	0.00	5.95	2.36
19-Jun-16	1.49	3.49	2.34	2.31	3.00	2.62	0.00	3.45	1.62
20-Jun-16	1.00	4.72	2.53	2.00	2.50	2.25	0.00	3.45	1.99
21-Jun-16	1.25	2.49	2.23	2.20	2.50	2.29	0.00	3.45	1.83
22-Jun-16	1.71	3.32	2.32	2.28	2.45	2.39	0.00	3.45	1.41
23-Jun-16	1.60	5.00	2.51	2.43	2.43	2.43	0.00	3.24	1.67
24-Jun-16	2.00	3.52	2.40	2.15	2.46	2.27	0.36	5.11	2.12
25-Jun-16	2.00	6.00	2.48	0.00	0.00	0.00	0.00	5.95	1.95
26-Jun-16	1.53	3.20	2.22	2.20	2.20	2.20	0.00	5.11	1.86
27-Jun-16	1.89	4.50	2.49	2.30	2.30	2.30	0.00	3.45	1.69
28-Jun-16	1.71	3.00	2.31	2.15	2.40	2.33	0.00	3.45	1.77
29-Jun-16	1.50	2.88	2.26	1.95	2.41	2.28	0.00	5.11	1.74
30-Jun-16	1.40	2.90	2.28	2.10	2.60	2.29	0.00	3.45	1.88
	<b>0.70#</b>	<b>6.00#</b>	<b>2.42</b>	<b>0.00#</b>	<b>3.00#</b>	<b>2.31</b>	<b>0.00</b>	<b>8.03</b>	<b>1.78</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), JUNE 2016**

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	0.00	429.16	429.16	0.00	362.28	362.28	117.45	117.45	0.00	791.43
Haryana	0.00	593.75	593.75	22.59	226.20	203.61	99.63	99.63	0.00	797.37
Rajasthan	280.07	0.00	-280.07	76.23	359.46	283.23	69.61	69.61	0.00	3.16
Delhi	11.40	389.16	377.76	54.17	123.56	69.39	31.01	31.01	0.00	447.15
Uttar Pradesh	27.72	734.98	707.26	0.00	28.56	28.56	138.01	138.01	0.00	735.83
Uttarakhand	0.78	38.72	37.94	0.00	72.61	72.61	24.32	24.32	0.00	110.55
Himachal Pradesh	604.87	0.00	-604.87	318.08	14.90	-303.18	48.70	48.70	0.00	-908.05
J & K	479.43	0.00	-479.43	31.86	12.06	-19.80	0.00	0.00	0.00	-499.23
Chandigarh	0.00	10.80	10.80	0.00	7.02	7.02	30.75	30.75	0.00	17.82
MP	76.37	10.99	-65.38	105.45	56.57	-48.88	21.83	81.63	-59.80	-174.06
Maharashtra	1.33	666.43	665.10	21.45	167.11	145.66	68.09	137.41	-69.32	741.45
Gujarat	244.63	46.92	-197.70	128.34	431.89	303.55	17.43	131.93	-114.50	-8.65
Chhattisgarh	174.86	134.92	-39.94	57.67	19.18	-38.49	85.03	25.59	59.45	-18.98
Goa	0.00	0.91	0.91	2.82	17.26	14.44	14.04	16.09	-2.05	13.30
Daman and Diu	0.00	0.00	0.00	0.00	39.26	39.26	11.28	1.39	9.89	49.15
Dadra & Nagar Haveli	0.00	0.00	0.00	0.00	173.57	173.57	0.63	11.34	-10.71	162.86
Andhra Pradesh	13.06	85.39	72.32	23.87	108.70	84.84	32.19	77.44	-45.25	111.91
Karnataka	12.68	0.00	-12.68	22.11	198.73	176.62	63.09	56.92	6.17	170.11
Kerala	0.00	0.45	0.45	13.09	41.69	28.60	50.53	3.89	46.64	75.70
Tamil Nadu	11.05	42.97	31.92	10.63	19.70	9.07	38.83	131.30	-92.47	-51.48
Pondicherry	0.00	0.00	0.00	0.00	2.31	2.31	2.51	10.76	-8.25	-5.94
Telangana	7.18	661.95	654.77	69.39	252.23	182.84	25.15	51.37	-26.23	811.38
West Bengal	12.33	351.76	339.43	36.35	118.93	82.57	56.05	20.16	35.90	457.89
Odisha	22.98	63.79	40.81	30.75	11.21	-19.54	54.06	15.64	38.42	59.69
Bihar	0.00	287.40	287.40	0.00	80.59	80.59	51.37	42.46	8.91	376.90
Jharkhand	0.00	159.28	159.28	0.00	0.00	0.00	25.74	25.42	0.32	159.60
Sikkim	10.80	0.00	-10.80	48.71	0.00	-48.71	6.63	3.47	3.16	-56.35
DVC	26.22	0.00	-26.22	22.40	0.00	-22.40	41.13	25.54	15.59	-33.02
Arunachal Pr	0.00	0.00	0.00	15.54	0.38	-15.16	8.20	2.44	5.76	-9.40
Assam	44.51	11.23	-33.28	36.23	51.32	15.09	43.22	6.14	37.08	18.89
Manipur	17.19	0.59	-16.61	30.26	0.00	-30.26	6.38	2.35	4.04	-42.83
Meghalaya	29.48	1.92	-27.56	19.58	5.29	-14.29	3.33	10.54	-7.21	-49.06
Mizoram	0.00	0.00	0.00	24.92	0.00	-24.92	1.91	2.10	-0.18	-25.10
Nagaland	0.00	0.00	0.00	5.25	0.06	-5.19	4.68	3.09	1.59	-3.60
Tripura	0.37	0.00	-0.37	37.24	0.00	-37.24	14.92	4.81	10.11	-27.49
NTPC Stations	0.00	0.00	0.00	7.50	0.00	-7.50	88.89	31.11	57.78	50.28
NHPC Stations	0.00	0.00	0.00	64.62	0.00	-64.62	8.74	41.83	-33.09	-97.71
NJPC	0.00	0.00	0.00	27.00	0.00	-27.00	2.24	6.36	-4.12	-31.12
Ad hydro	40.86	0.00	-40.86	56.72	0.00	-56.72	5.68	7.25	-1.57	-99.15

Karcham wangtoo	108.00	0.00	-108.00	304.10	0.00	-304.10	1.79	8.06	-6.27	-418.37
SHREE CEMENT	164.48	0.00	-164.48	17.28	0.00	-17.28	5.16	1.67	3.49	-178.28
LANCO BUDHIL	0.00	0.00	0.00	4.34	0.00	-4.34	3.78	1.54	2.24	-2.10
Adani HVDC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	-0.05	-0.05
Malana	0.00	0.00	0.00	6.37	0.00	-6.37	0.33	0.35	-0.02	-6.40
URI-2	0.00	0.00	0.00	0.00	0.00	0.00	0.34	4.34	-4.00	-4.00
NTPC Stations	0.00	0.00	0.00	0.86	0.00	-0.86	90.26	107.55	-17.30	-18.15
JINDAL Power	99.88	0.00	-99.88	133.94	0.00	-133.94	4.51	4.32	0.20	-233.62
LANCO_AMK	8.25	0.00	-8.25	0.00	0.00	0.00	0.73	2.94	-2.21	-10.47
NSPCL	24.77	0.00	-24.77	0.00	0.00	0.00	5.16	5.97	-0.81	-25.58
ACBIL	7.29	0.00	-7.29	39.14	0.00	-39.14	2.09	2.99	-0.90	-47.32
BALCO	0.00	0.00	0.00	19.19	0.00	-19.19	24.75	2.72	22.03	2.85
RGPPL(Dabhol)	0.00	0.00	0.00	0.00	0.00	0.00	3.48	2.23	1.24	1.24
CGPL	0.00	0.00	0.00	0.00	0.00	0.00	10.66	6.56	4.10	4.10
DCPP	0.00	0.00	0.00	7.22	0.00	-7.22	3.89	2.42	1.47	-5.75
EMCO	0.00	0.00	0.00	0.00	0.00	0.00	7.98	7.99	-0.01	-0.01
Vandana Vidyut	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	-0.04	-0.04
Essar Steel	0.00	167.60	167.60	0.00	143.79	143.79	25.29	19.07	6.23	317.61
KSK Mahanadi	0.00	0.00	0.00	0.00	0.00	0.00	2.71	4.82	-2.11	-2.11
Essar Power	168.96	0.00	-168.96	0.00	0.00	0.00	5.87	1.88	3.99	-164.97
Jindal Stage-ii	20.81	0.00	-20.81	0.43	0.00	-0.43	0.00	0.00	0.00	-21.24
DB POWER	261.01	0.00	-261.01	113.14	0.00	-113.14	9.09	3.07	6.02	-368.13
Dhariwal Power	0.00	0.00	0.00	4.81	0.00	-4.81	0.31	0.53	-0.22	-5.03
JAYPEE NIGRIE	0.00	0.00	0.00	68.26	0.00	-68.26	13.80	6.15	7.65	-60.60
DGEN Mega power	0.00	0.00	0.00	0.00	0.00	0.00	4.02	0.00	4.02	4.02
GMR Chhattisgarh	0.00	0.00	0.00	0.00	0.00	0.00	3.19	0.00	3.19	3.19
Korba West Power	181.80	0.00	-181.80	84.97	0.00	-84.97	5.11	0.73	4.38	-262.39
MB Power	0.00	0.00	0.00	0.00	0.00	0.00	8.00	1.95	6.05	6.05
Maruti Coal	0.00	0.00	0.00	37.67	0.00	-37.67	0.00	0.00	0.00	-37.67
SPECTRUM	0.00	0.00	0.00	1.50	0.00	-1.50	1.40	0.00	1.40	-0.10
Jhabua Power_MP	0.00	0.00	0.00	43.08	0.00	-43.08	7.61	1.06	6.55	-36.53
NTPC Stations	0.00	0.00	0.00	0.04	0.00	-0.04	30.00	20.99	9.01	8.97
Lanko Kondapalli	117.10	0.00	-117.10	0.00	0.00	0.00	10.90	0.02	10.88	-106.22
SIMHAPURI	31.49	0.00	-31.49	74.86	0.00	-74.86	0.20	2.14	-1.94	-108.29
Meenakshi	10.05	0.00	-10.05	150.30	0.00	-150.30	0.70	1.94	-1.24	-161.60
COASTGEN	25.10	0.00	-25.10	3.79	0.00	-3.79	2.44	2.99	-0.55	-29.44
Thermal Powertech	526.70	0.00	-526.70	90.10	0.00	-90.10	2.74	9.07	-6.33	-623.13
ILF&S	38.01	0.00	-38.01	14.31	0.00	-14.31	0.58	6.63	-6.05	-58.37
NTPC Stations	0.00	0.00	0.00	0.00	0.00	0.00	95.18	19.64	75.53	75.53
STERLITE	58.67	0.00	-58.67	90.93	0.00	-90.93	16.67	3.34	13.34	-136.27
Maithon Power Ltd	0.00	0.00	0.00	0.00	0.00	0.00	8.14	8.33	-0.19	-0.19
Adhunik Power Ltd	159.28	0.00	-159.28	2.13	0.00	-2.13	1.66	2.27	-0.61	-162.02
Chuzachen Hep	0.00	0.00	0.00	57.90	0.00	-57.90	1.48	5.68	-4.20	-62.09
Rangit Hep	0.00	0.00	0.00	0.00	0.00	0.00	0.32	3.23	-2.91	-2.91
GMR Kamalanga	278.87	0.00	-278.87	49.74	0.00	-49.74	7.63	9.31	-1.68	-330.30

JITPL	217.23	0.00	-217.23	174.01	0.00	-174.01	15.64	7.04	8.60	-382.64
TEESTA HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.05	11.20	-11.15	-11.15
Dagachu	31.15	0.00	-31.15	0.00	0.00	0.00	7.87	2.78	5.09	-26.06
Jorethang	0.00	0.00	0.00	44.32	0.00	-44.32	6.18	5.82	0.36	-43.97
NEPAL(NWN)	0.00	54.00	54.00	0.00	0.00	0.00	0.75	3.27	-2.52	51.48
NEEPCO Stations	0.00	0.00	0.00	51.02	0.00	-51.02	3.61	28.52	-24.91	-75.93
Loktak	0.00	0.00	0.00	0.00	0.00	0.00	3.17	0.35	2.81	2.81
<b>Total</b>	4689.11	4945.07	255.96	3146.41	3146.41	35.88	1880.51	1902.82	-22.31	269.54

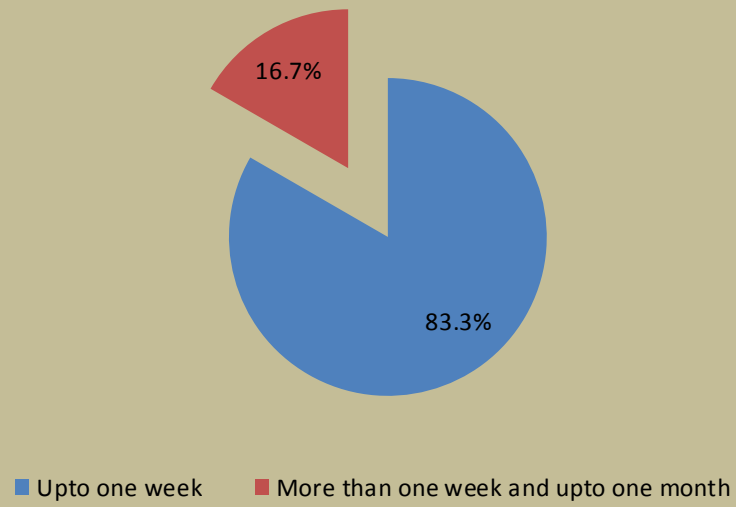
Source: NLDC

\* 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.

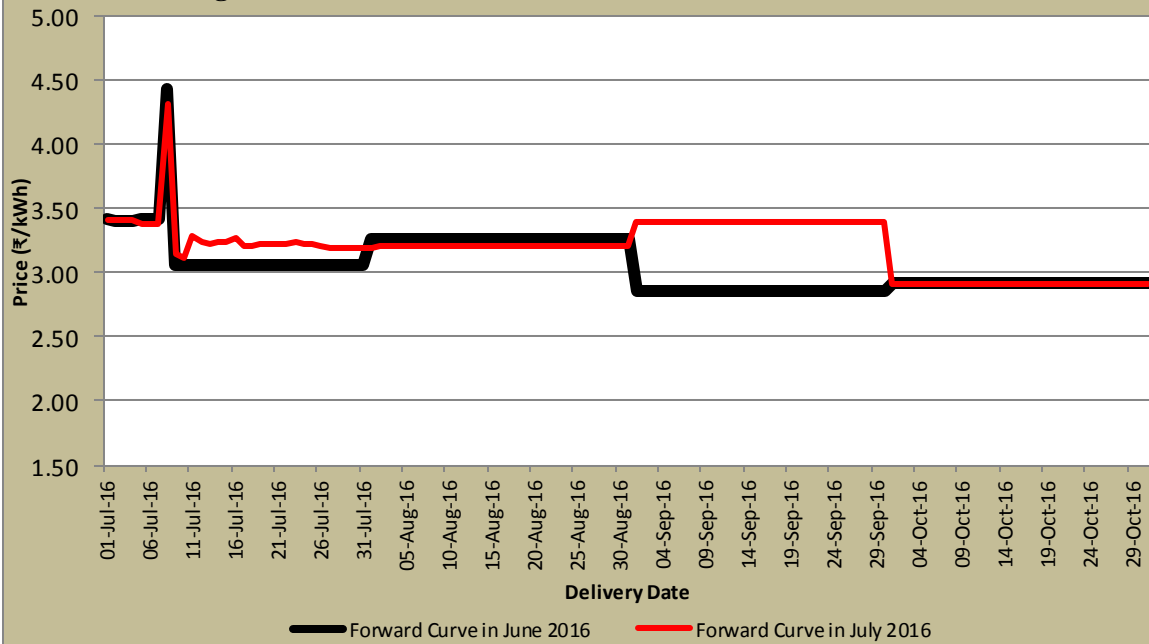
\*\* (-) indicates sale and (+) indicates purchase,

\*\*\* Total net includes net of transactions through bilateral, power exchange and DSM

**Figure-7: Bilateral Contracts Executed by Traders in July 2016**



**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, JUNE 2016</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	35649	350362	15,366	67,064
B	Volume of Sell Bid	2869142	8745523	6,72,116	44,41,681
C	Ratio of Buy Bid to Sell Bid Volume	0.012	0.040	0.023	0.015
D	Market Clearing Volume (MWh)	35649	350362	15,366	67,064
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>