

Monthly Report on Short-term Transactions of Electricity in India

July, 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
DOYANG HEP	Doyang Hydro Electric Project
DSM	Deviation Settlement Mechanism
DVC	Damodar Valley Corporation
EMCO	EMCO Energy Limited
ESSAR POWER	Essar Power Limited
ESSAR STEEL	Essar Steel Ltd
GMR CHHATTISGARH	GMR Chhattisgarh Energy Limited
GMR KAMALANGA	GMR Kamalanga Energy Ltd.
IEX	Indian Energy Exchange Limited
ILF&S	Infrastructure Leasing & Financial Services Limited
J&K	Jammu & Kashmir
JAYPEE NIGRIE	Jaypee Nigrie Super Thermal Power Project
JINDAL POWER	Jindal Power Limited
JINDAL STAGE-II	Jindal Power Ltd Stage II
JITPL	Jindal India Thermal Power Ltd.
JORETHANG	Jorethang Loop Hydroelectric Power Project
KARCHAM WANGTOO	Jaypee Karcham Hydro Corporation Limited
KORBA WEST POWER	Korba West Power Company Limited
KSK MAHANADI	KSK Mahanadi Power Ltd
LANKO BUDHIL	Lanco Budhil Hydro Power Private Limited
LANKOAMK	Lanco Amarkantak Power Private Limited
LANKOKONDAPALLY	Lanco Kondapally Power Private Limited

LOKTAK	Loktak Power Project
MALANA	Malana Hydroelectric Plant
Maruti Coal	Maruti Clean Coal and Power Limited
MB POWER	MB Power Ltd
MEENAKSHI	Meenakshi Energy Private Limited
MP	Madhya Pradesh
MUs	Million Units
NEEPCO	North Eastern Electric Power Corporation Limited
NHPC STATIONS	National Hydro Electric Power Corporation Ltd. Stations
NLC	Neyveli Lignite Corporation Limited
NTPC STATIONS	National Thermal Power Corporation Ltd. Stations
NJPC	Nathpa Jhakri Hydroelectric Power Station
NLDC	National Load Despatch Centre
NSPCL	NTPC - SAIL Power Company Private Limited
NVVN	NTPC Vidyut Vyapar Nigam Limited
ONGC Platana	ONGC Tripura Power Company
OTC	Over The Counter
PX	Power Exchange
PXIL	Power Exchange India Limited
RANGIT HEP	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
Sasan UMPP	Sasan Ultra Mega Power Project
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 **July, 2016** are as under:

I: Volume of Short-term Transactions of Electricity

During July 2016, total electricity generation excluding generation from renewable and captive power plants in India was 94582.69 MUs (Table-1).

Of the total electricity generation, 11362.07 MUs (12.01 %) was transacted through short-term, comprising of 5706.31 MUs (6.03%) through bilateral (through traders and term-ahead contracts on power exchanges and directly between distribution companies), followed by 3594.48 MUs (3.80%) through day ahead collective transactions on power exchanges (IEX and PXIL) and 2061.28 MUs (2.18%) through DSM (Table-1 & Figure-2).

Of the total short-term transactions, bilateral constitutes 50.22% (34.09% through traders and term-ahead contracts on power exchanges and 16.13% directly between distribution companies) followed by 31.64% through day ahead collective transactions on power exchanges and 18.14% 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 36 trading licensees as on July, 2016. In July 2016, 22 trading licensees were engaged in short term trading. Top 5 trading licensees had a share of 77.91% 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 NTPC Vidyut Vyapar Nigam 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 0.1515 for the month of July 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 3580.52 MUs and 13.96 MUs respectively. The volume of total buy bids and sell bids was 3987.53 MUs and 6741.14 MUs respectively in IEX while the same was 14.72 MUs and 57.04 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 26.33 MUs and 2.74 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, ₹5.54/kWh and ₹3.66/kWh respectively (Table-3). The weighted average sale prices were also computed for the transactions during Round

the Clock (RTC) and Peak period separately, and the sale prices were ₹3.68/kWh and ₹2.58/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 ₹1.61/kWh, ₹3.96/kWh and ₹2.19/kWh respectively in IEX and ₹1.90/kWh, ₹2.44/kWh and ₹2.33/kWh respectively in PXIL (Table-5).

The price of electricity transacted through IEX and PXIL in the term-ahead market was ₹2.74/kWh and ₹2.70/kWh respectively (Table-6 and Table-7).

(iii) Price of electricity transacted through DSM: The average deviation settlement price was ₹1.55/kWh. The minimum and maximum deviation settlement prices were ₹0.00/kWh and ₹6.36/kWh respectively (Table-8).

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

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

Of the total bilateral transactions, top 5 regional entities sold 45.88% of the volume, and these were Himachal Pradesh, Thermal Powertech Corporation India Ltd, Jammu & Kashmir, Rajasthan and GMR Kamalanga. Top 5 regional entities purchased 62.42% 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 39.15% of the volume, and these were Jindal India Thermal Power Ltd., Jaypee Karcham Hydro Corporation Ltd., Gujarat, Himachal Pradesh and Delhi. Top 5 regional entities purchased 51.68% of the volume, and these were Gujarat, Punjab, Rajasthan, Telangana and Uttarakhand (Table-11 & 12).

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

Of the total DSM transactions, top 5 regional entities underdrew 35.21% of the volume, and these were Punjab, Haryana, Rajasthan, Delhi and Uttar Pradesh (Table-13). Top 5 regional entities overdrew 27.23% of the volume, and these were Uttar Pradesh, NTPC Stations (Western Region), NTPC Stations (Northern Region), Punjab and Rajasthan (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 Punjab, Haryana, Rajasthan, Delhi and Uttar Pradesh.

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

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

In the month of July 2016, congestion occurred in both the power exchanges. The details of congestion are shown in Table-16. The volume of electricity that could not be cleared due to congestion and could not be transacted through power exchanges is the

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

³ “Market Splitting” is a mechanism adopted by Power Exchange where the market is split in the event of transmission congestion, into predetermined (by NLDC) bid areas or zones, which are cleared individually at their respective area prices such that the energy balance in every bid area is reached based upon the demand and supply in individual bid areas and using the available transmission corridor capacity between various bid areas simultaneously”

As a result of this market splitting the price of electricity in the importing region, where demand for electricity is more than supply, becomes relatively higher than the price of electricity in the exporting region.

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

During the month, the volume of electricity that could not be cleared in IEX and PXIL due to congestion was 1.87% and 0.10% of the unconstrained cleared volume respectively. In terms of time, congestion occurred was 43% in IEX and 13.10% in PXIL (Table-16).

V: Bilateral Contracts executed by Traders

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

(i) Duration of bilateral contracts: During August, 2016, a total of 144 bilateral contracts (excluding banking/swap contracts) have been executed by traders for the volume of 1506.26 MUs.. Figure-7 shows the percentage of contracts categorized according to the period of power supply. It can be observed from the figure that 70.8% of the bilateral contracts were executed for duration of up to one week, 29.2% 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, 196 banking/swapping bilateral contracts were also executed for the volume of 2933.55MUs.

(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 August, 2016 to October, 2016 based on bilateral contracts⁴ executed till August, 2016. Forward curves have been drawn for the contracts executed in July, 2016 and August, 2016

⁴Excluding Banking/Swapping contracts

for the purpose of comparison. It is observed that the forward prices for the period 31st August, 2016 to 30th September, 2016 are relatively higher for the contracts executed in August, 2016 compared to the contracts executed in July, 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 July, 2016 are shown in Table-20. The market clearing volume of solar RECs transacted on IEX and PXIL were 23944 and 14029 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 139250 and 95757 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 0.010 in IEX and PXIL respectively. For non-solar RECs, the ratio of buy bids to sell bids was 0.019 and 0.017 in IEX and PXIL respectively.

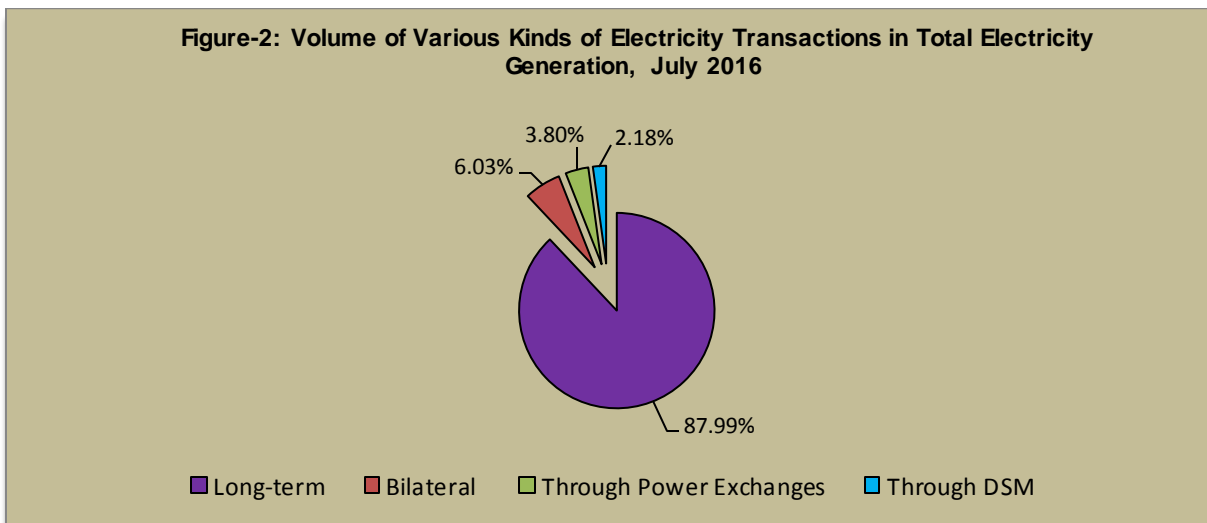
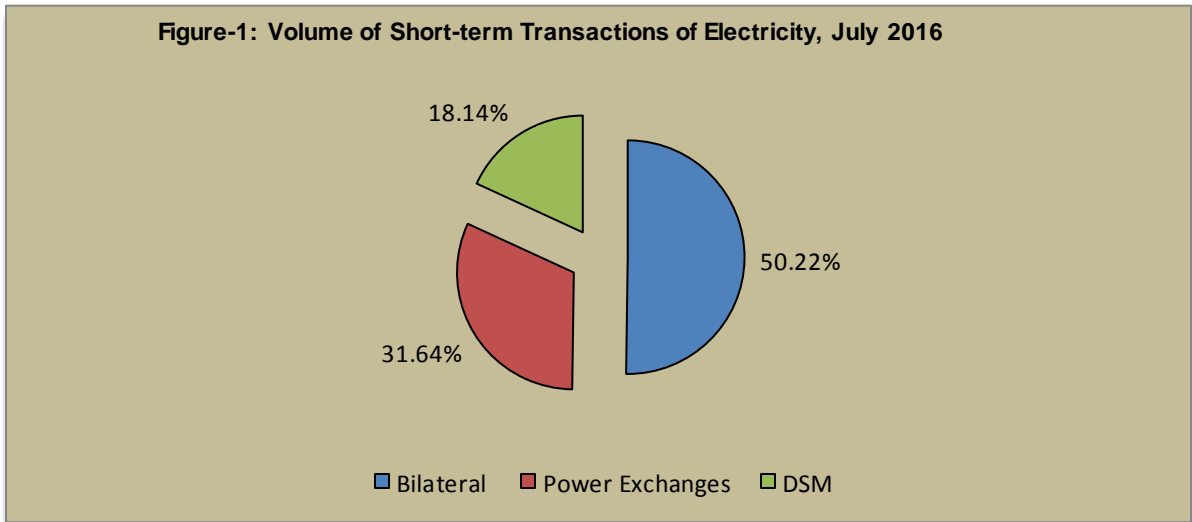
VII: Inferences:

- The percentage of short-term transactions of electricity to total electricity generation was 12.01%.
- Of the total short-term transactions of electricity, 50.22% was transacted through bilateral (through traders and term ahead contracts on power exchanges and directly by distribution companies), followed by 31.64% through power exchanges and 18.14% through DSM.
- Top 5 trading licensees had a share of 77.91% 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 0.1515, indicating moderate concentration of market power.
- The weighted average price of electricity transacted through trading licensees was ₹3.66/kWh. The weighted average prices of electricity transacted through IEX and PXIL were ₹2.19/kWh and ₹2.33/kWh respectively.
- The average price of electricity transacted through DSM was ₹1.55/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 Punjab, Haryana, Rajasthan, Delhi and Uttar Pradesh.
- The volume of electricity that could not be cleared due to congestion was 1.87% and 0.10% of the unconstrained cleared volume in IEX and PXIL, respectively. In terms of time, congestion occurred was 43% in IEX and 13.10% in PXIL.
- In August, 70.8% of the bilateral contracts were executed for duration of up to one week, 29.2% 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.

- The forward prices for the period 31st August, 2016 to 30th September, 2016 are relatively higher for the contracts executed in August, 2016 compared to the contracts executed in July, 2016.
- The market clearing volume of solar RECs transacted on IEX and PXIL were 23944 and 14029 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 139250 and 95757 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), JULY 2016				
Sr.No	Short-term transactions	Volume (MUs)	% to Volume of short-term transactions	% to Total Generation
1	Bilateral	5706.31	50.22	6.03
	(i) Through Traders and PXs	3873.80	34.09	4.10
	(ii) Direct	1832.50	16.13	1.94
2	Through Power Exchanges	3594.48	31.64	3.80
	(i) IEX	3580.52	31.51	3.79
	(ii) PXIL	13.96	0.12	0.015
3	Through DSM	2061.28	18.14	2.18
	Total	11362.07	-	12.01
	Total Generation	94582.69	-	-

Source: NLDC



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

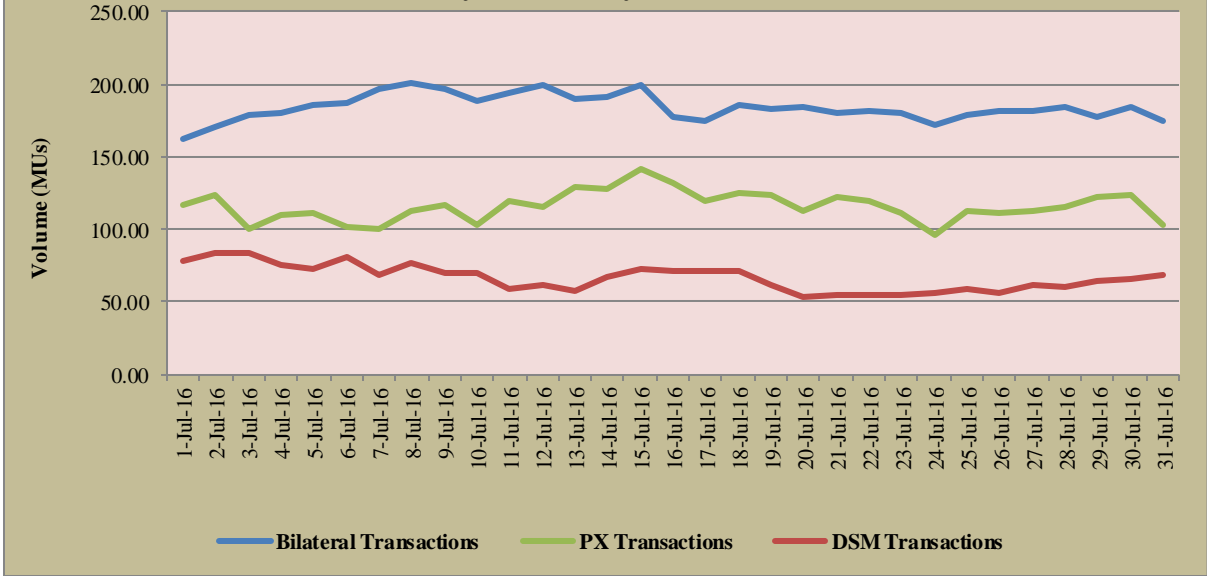


Table-2: PERCENTAGE SHARE OF ELECTRICITY TRANSACTED BY TRADING LICENSEES, JULY 2016			
Sr.No	Name of the Trading Licensee	% Share in total Volume transacted by Trading Licensees	Herfindahl-Hirschman Index
1	PTC India Ltd.	25.96	0.0674
2	Mittal Processors (P) Ltd.	19.79	0.0392
3	Manikaran Power Ltd.	14.57	0.0212
4	Tata Power Trading Company (P) Ltd.	10.60	0.0112
5	NTPC Vidyut Vyapar Nigam Ltd.	7.00	0.0049
6	Arunachal Pradesh Power Corporation (P) Ltd	6.43	0.0041
7	Adani Enterprises Ltd.	3.81	0.0015
8	GMR Energy Trading Ltd.	3.27	0.0011
9	Knowledge Infrastructure Systems (P) Ltd	1.74	0.0003
10	Jaiprakash Associates Ltd.	1.72	0.0003
11	JSW Power Trading Company Ltd	1.20	0.0001
12	Instinct Infra & Power Ltd.	0.87	0.0001
13	National Energy Trading & Services Ltd.	0.70	0.0000
14	RPG Power Trading Company Ltd.	0.58	0.0000
15	SN Power Markets Pvt. Ltd.	0.49	0.0000
16	Shree Cement Ltd.	0.27	0.0000
17	My Home Power Private Ltd.	0.22	0.0000
18	Customized Energy Solutions India (P) Ltd.	0.22	0.0000
19	Essar Electric Power Development Corp. Ltd.	0.20	0.0000
20	Gita Power & Infrastructure Private Limited	0.19	0.0000
21	Phillip Commodities India (P) Ltd.	0.14	0.0000
22	Ambitious Power Trading Company Ltd.	0.03	0.0000
TOTAL		100.00%	0.1515
Top 5 trading licensees		77.91%	
<i>Note 1: Volume of electricity transacted by the trading licensees includes bilateral transactions (inter-state & intra-state) and the transactions undertaken through power exchanges.</i>			
<i>Note 2: Volume of electricity transacted by Global Energy Ltd is not included.</i>			
<i>Source: Information submitted by trading licensees</i>			

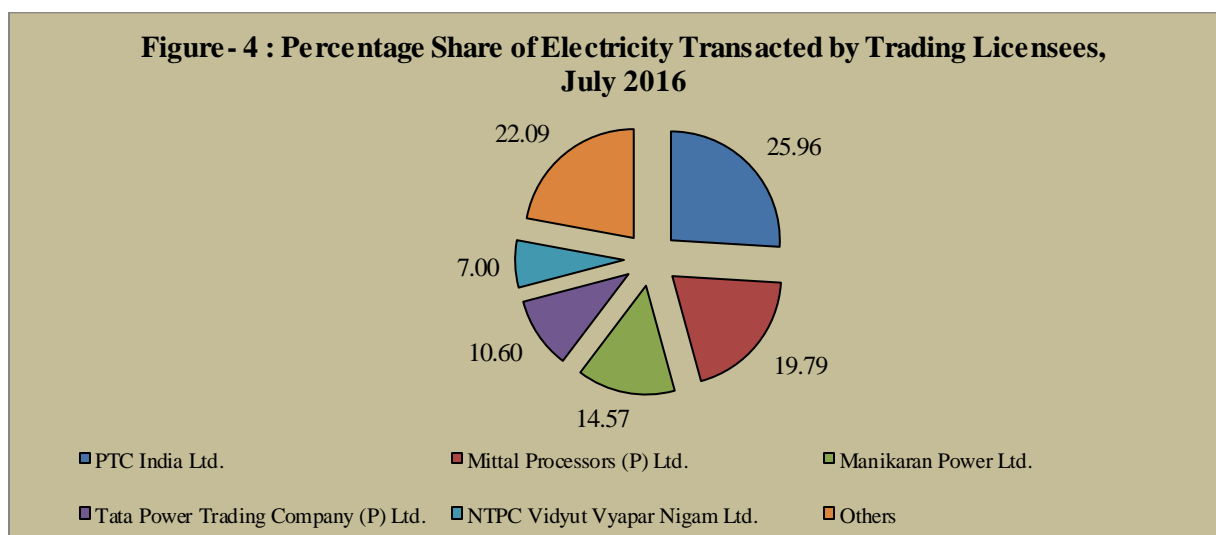


Table-3: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS, JULY 2016		
Sr.No	Item	Sale Price of Traders (₹/kWh)
1	Minimum	0.03
2	Maximum	5.54
3	Weighted Average	3.66

Source: Information submitted by trading licensees

Table-4: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS (TIME-WISE), JULY 2016		
Sr.No	Period of Trade	Sale Price of Traders (₹/kWh)
1	RTC	3.68
2	PEAK	2.58
3	OFF PEAK	2.33

Source: Information submitted by trading licensees

Table-5: PRICE OF ELECTRICITY TRANSACTED THROUGH POWER EXCHANGES, JULY 2016			
Sr.No	ACP	Price in IEX (₹/kWh)	Price in PXIL (₹/kWh)
1	Minimum	1.61	1.90
2	Maximum	3.96	2.44
3	Weighted Average	2.19	2.33

Source: Information submitted by IEX and PXIL

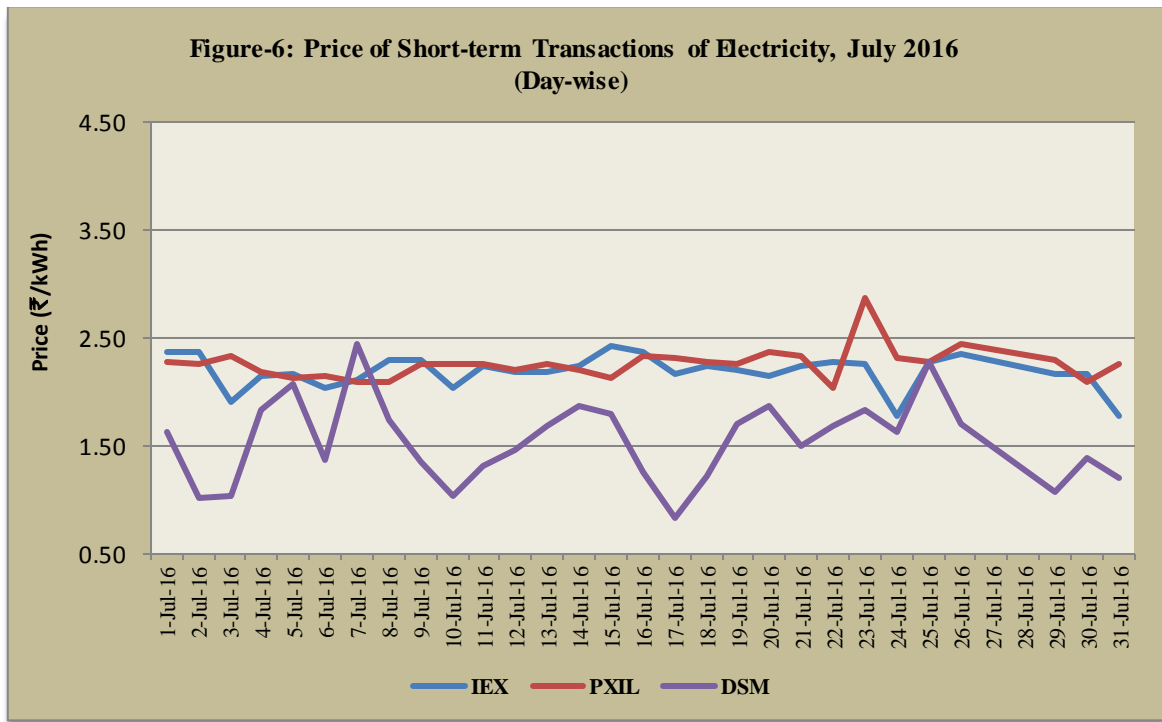
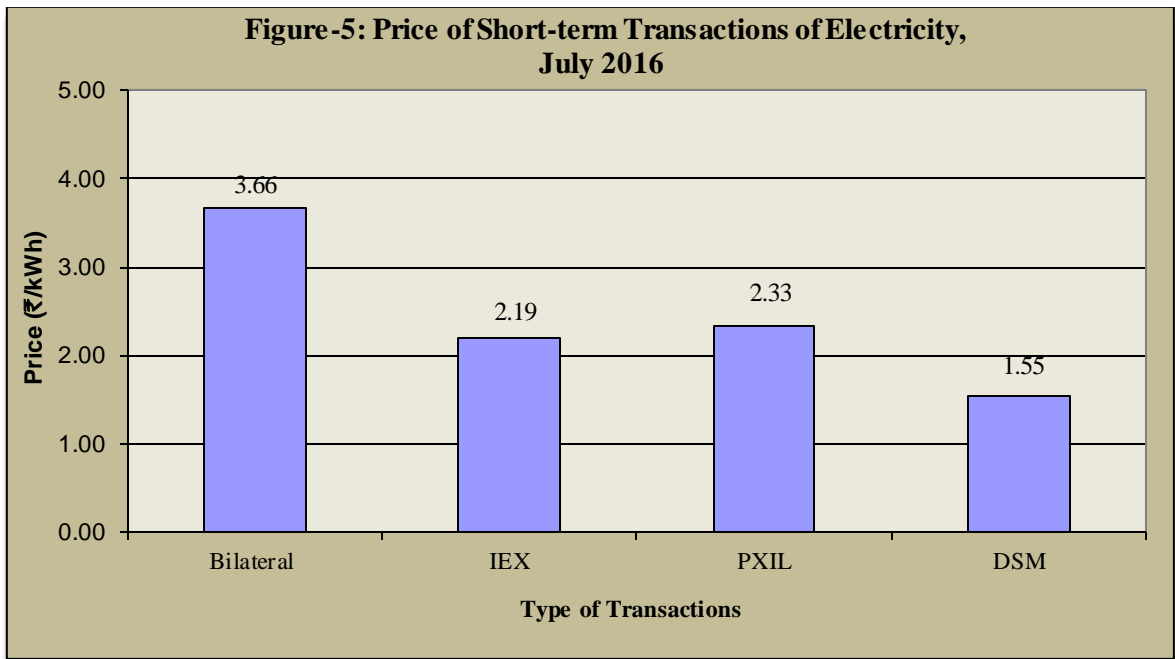
Table-6: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF IEX, JULY 2016			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	13.86	2.78
2	Day Ahead Contingency Contracts	12.47	2.70
	Total	26.33	2.74

Source: IEX

Table-7: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF PXIL, JULY 2016			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	7.15	2.70
2	Daily Contracts		
	Total	7.15	2.70

Source: PXIL

Table-8: PRICE OF ELECTRICITY TRANSACTED THROUGH DSM, JULY 2016		
Sr.No	Item	Price in All India Grid (₹/kWh)
1	Minimum	0.00
2	Maximum	6.36
3	Average	1.55



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

Name of the Entity	Volume of Sale (MUs)	% of Volume
HIMACHAL PRADESH	637.22	13.11
THERMAL POWERTECH	526.70	10.84
J & K	496.76	10.22
RAJASTHAN	289.72	5.96
GMR KAMALANGA	278.90	5.74
DB POWER	267.31	5.50
GUJARAT	249.66	5.14
JITPL	223.50	4.60
CHHATTISGARH	188.00	3.87
KORBA WEST POWER	181.80	3.74
ESSAR POWER	178.97	3.68
SHREE CEMENT	169.55	3.49
ADHUNIK POWER LTD	162.16	3.34
LANKO KONDAPALLI	122.50	2.52
KARCHAM WANGTOO	111.26	2.29
JINDAL POWER	102.97	2.12
MP	81.85	1.68
STERLITE	58.67	1.21
ASSAM	44.51	0.92
AD HYDRO	43.64	0.90
ILF&S	38.01	0.78
DAGACHU	33.88	0.70
SIMHAPURI	32.17	0.66
MEGHALAYA	30.67	0.63
UTTAR PRADESH	30.07	0.62
ODISHA	30.03	0.62
DVC	27.56	0.57
NSPCL	25.63	0.53
COASTGEN	25.10	0.52
JINDAL STAGE-II	21.29	0.44
MANIPUR	17.19	0.35
ANDHRA PRADESH	14.30	0.29
KARNATAKA	13.38	0.28
WEST BENGAL	12.67	0.26
DELHI	12.30	0.25
TAMIL NADU	11.39	0.23
UTTARAKHAND	10.87	0.22
SIKKIM	10.80	0.22
MEENAKSHI	10.42	0.21
GMR CHHATTISGARH	10.07	0.21
LANKO_AMK	8.56	0.18
TELANGANA	7.36	0.15
ACBIL	7.32	0.15
MAHARASHTRA	2.08	0.04
TRIPURA	0.53	0.01
TOTAL	4859.32	100.00
Volume Sold by top 5 Regional Entities	2229.31	45.88

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

Name of the Entity	Volume of Purchase (MUs)	% of Volume
UTTAR PRADESH	751.31	14.66
MAHARASHTRA	681.55	13.30
TELANGANA	670.42	13.08
HARYANA	636.18	12.41
PUNJAB	459.90	8.97
DELHI	407.39	7.95
WEST BENGAL	352.57	6.88
BIHAR	297.14	5.80
ESSAR STEEL	177.32	3.46
JHARKHAND	161.88	3.16
CHHATTISGARH	142.45	2.78
ANDHRA PRADESH	85.93	1.68
ODISHA	67.88	1.32
NEPAL(NVVN)	55.22	1.08
GUJARAT	47.25	0.92
TAMIL NADU	42.97	0.84
UTTARAKHAND	40.71	0.79
ASSAM	13.63	0.27
MP	12.42	0.24
CHANDIGARH	11.16	0.22
ONGC PALATANA	5.43	0.11
MEGHALAYA	2.52	0.05
GOA	0.91	0.02
MANIPUR	0.59	0.01
KERALA	0.45	0.01
TOTAL	5125.19	100.00
Volume Purchased by top 5 Regional Entities	3199.37	62.42

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

Name of the Entity	Volume of Sale (MUs)	% of Volume
JITPL	519.81	14.46
KARCHAM WANGTOO	320.17	8.91
GUJARAT	201.29	5.60
HIMACHAL PRADESH	185.68	5.17
DELHI	180.31	5.02
JINDAL POWER	159.43	4.44
MP	155.93	4.34
JAYPEE NIGRIE	148.71	4.14
MAHARASHTRA	126.00	3.51
DB POWER	91.41	2.54
MEENAKSHI	84.38	2.35
CHUZACHEN HEP	79.03	2.20
SIMHAPURI	76.37	2.12
NHPC STATIONS	69.53	1.93
NEEPCO STATIONS	67.08	1.87
MARUTI COAL	66.18	1.84
ASSAM	64.93	1.81
TELANGANA	63.49	1.77
CHHATTISGARH	60.97	1.70
JORETHANG	57.76	1.61
HARYANA	52.33	1.46
SIKKIM	51.29	1.43
THERMAL POWERTECH	48.99	1.36
TRIPURA	45.79	1.27
ACBIL	43.83	1.22
J & K	40.68	1.13
KERALA	40.36	1.12
AD HYDRO	39.22	1.09
MIZORAM	36.32	1.01
TAMIL NADU	35.11	0.98
ARUNACHAL PRADESH	30.20	0.84
NJPC	27.95	0.78
KARNATAKA	26.35	0.73
MANIPUR	25.68	0.71
GMR CHHATTISGARH	24.25	0.67

RAJASTHAN	23.08	0.64
NLC	21.81	0.61
ODISHA	21.76	0.61
DVC	18.12	0.50
ANDHRA PRADESH	16.65	0.46
WEST BENGAL	15.80	0.44
GMR KAMALANGA	15.32	0.43
SPECTRUM	13.23	0.37
NAGALAND	11.30	0.31
EMCO	10.14	0.28
KORBA WEST POWER	9.13	0.25
NTPC STATIONS NORTHERN REGION	8.67	0.24
MALANA	8.51	0.24
MEGHALAYA	7.33	0.20
BALCO	7.30	0.20
SHREE CEMENT	7.07	0.20
DCPP(DONGA MAHUA CAPTIVE POWER PLANT)	6.73	0.19
DHARIWAL POWER	6.17	0.17
LANCO BUDHIL	5.89	0.16
COASTGEN	4.81	0.13
ADHUNIK POWER LTD	2.69	0.07
MB POWER	1.46	0.04
CHANDIGARH	1.15	0.03
LANKO KONDAPALLI	1.07	0.03
ILF&S	1.02	0.03
NTPC STATIONS SOUTHERN REGION	0.59	0.02
GOA	0.48	0.01
NTPC STATIONS WESTERN REGION	0.34	0.01
TOTAL	3594.40	100.00
Volume sold by top 5 Regional Entities	1407.26	39.15

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

Name of the Entity	Volume of Purchase (MUs)	% of Volume
Gujarat	479.69	13.35
Punjab	411.78	11.46
Rajasthan	400.17	11.13
Telangana	298.82	8.31
Uttarakhand	267.21	7.43
Haryana	257.48	7.16
Dadra & Nagar Haveli	213.66	5.94
Karnataka	209.76	5.84
Andhra Pradesh	195.59	5.44
West Bengal	147.76	4.11
Chhattisgarh	97.36	2.71
Maharashtra	91.88	2.56
ESSAR STEEL	61.86	1.72
MP	59.32	1.65
Assam	51.21	1.42
Himachal Pradesh	50.24	1.40
ODISHA	49.10	1.37
Delhi	42.19	1.17
Bihar	40.30	1.12
Daman and Diu	39.29	1.09
Kerala	38.26	1.06
Uttar Pradesh	25.70	0.72
Tamil Nadu	23.26	0.65
GOA	21.06	0.59
Meghalaya	9.49	0.26
J & K	5.33	0.15
Pondicherry	3.10	0.09
Chandigarh	1.62	0.05
DVC	1.58	0.04
Tripura	0.32	0.01
Nagaland	0.12	0.00
TOTAL	3594.48	100.00
Volume purchased by top 5 Regional Entities	1857.66	51.68

Table-13: VOLUME OF ELECTRICITY UNDER DRAWAL (EXPORTED) THROUGH DSM, JULY 2016		
Name of the Entity	Volume of Under drawal (MUs)	% of Volume
PUNJAB	152.27	8.74
HARYANA	118.13	6.78
RAJASTHAN	116.00	6.66
DELHI	115.01	6.60
UTTAR PRADESH	111.87	6.42
UTTARAKHAND	95.75	5.50
HIMACHAL PRADESH	65.21	3.74
J & K	59.45	3.41
CHANDIGARH	56.98	3.27
MP	56.53	3.25
MAHARASHTRA	51.97	2.98
GUJARAT	48.10	2.76
CHHATTISGARH	44.92	2.58
GOA	42.57	2.44
DAMAN AND DIU	41.83	2.40
DADRA & NAGAR HAVELI	37.04	2.13
ANDHRA PRADESH	36.33	2.09
KARNATAKA	32.52	1.87
KERALA	31.11	1.79
TAMIL NADU	30.26	1.74
PONDICHERRY	26.60	1.53
TELANGANA	23.77	1.36
WEST BENGAL	22.72	1.30
ODISHA	18.58	1.07
BIHAR	18.17	1.04
JHARKHAND	17.16	0.99
SIKKIM	15.88	0.91
DVC	14.58	0.84
ARUNACHAL PRADESH	14.20	0.81
ASSAM	12.45	0.71
MANIPUR	11.05	0.63
MEGHALAYA	10.43	0.60
MIZORAM	9.96	0.57
NAGALAND	9.60	0.55
TRIPURA	8.99	0.52
NTPC STATIONS NORTHERN REGION	8.97	0.51
NHPC STATIONS	8.22	0.47
NJPC	7.63	0.44
AD HYDRO	7.43	0.43
KARCHAM WANGTOO	6.94	0.40
SHREE CEMENT	6.74	0.39
LANCO BUDHIL	6.36	0.37
ADANI HVDC	6.14	0.35
MALANA	5.77	0.33
URI-2	5.45	0.31
NTPC STATIONS WESTERN REGION	5.35	0.31

JINDAL POWER	5.30	0.30
LANKO_AMK	5.07	0.29
NSPCL	5.06	0.29
ACBIL	4.60	0.26
BALCO	4.29	0.25
RGPPL(DABHOL)	3.99	0.23
CGPL(COASTAL GUJARAT POWER LTD)	3.95	0.23
DCPP(DONGA MAHUA CAPTIVE POWER PLANT)	3.77	0.22
EMCO	3.76	0.22
VANDANA VIDYUT	3.74	0.21
ESSAR STEEL	3.74	0.21
KSK MAHANADI	3.67	0.21
ESSAR POWER	3.13	0.18
JINDAL STAGE-II	3.08	0.18
DB POWER	3.02	0.17
DHARIWAL POWER	2.77	0.16
JAYPEE NIGRIE	2.25	0.13
DGEN MEGA POWER	2.16	0.12
GMR CHHATTISGARH	2.07	0.12
KORBA WEST POWER	2.00	0.11
MB POWER	1.92	0.11
MARUTI COAL	1.81	0.10
SPECTRUM	1.62	0.09
JHABUA POWER_MP	1.52	0.09
SASAN UMPP	1.44	0.08
NTPC STATIONS SOUTHERN REGION	1.33	0.08
LANKO KONDAPALLI	1.30	0.07
SIMHAPURI	1.06	0.06
MEENAKSHI	1.00	0.06
COASTGEN	0.86	0.05
THERMAL POWERTECH	0.81	0.05
ILF&S	0.77	0.04
NLC	0.59	0.03
NTPC STATIONS EASTERN REGION	0.48	0.03
STERLITE	0.40	0.02
MAITHON POWER LTD	0.26	0.01
ADHUNIK POWER LTD	0.26	0.01
CHUZACHEN HEP	0.05	0.00
RANGIT HEP	0.02	0.00
GMR KAMALANGA	0.02	0.00
TOTAL	1741.93	100.00
Volume Exported by top 5 Regional Entities	613.28	35.21

Table-14: VOLUME OF ELECTRICITY OVER DRAWAL (IMPORTED) THROUGH DSM, JULY 2016		
Name of the Entity	Volume of Overdrawal (MUs)	% of Volume
UTTAR PRADESH	145.13	7.07
NTPC STATIONS WESTERN REGION	117.28	5.72
NTPC STATIONS NORTHERN REGION	105.13	5.12
PUNJAB	100.90	4.92
RAJASTHAN	90.39	4.41
CHHATTISGARH	85.74	4.18
KARNATAKA	81.51	3.97
MAHARASHTRA	77.44	3.77
WEST BENGAL	72.38	3.53
NTPC STATIONS EASTERN REGION	68.50	3.34
ANDHRA PRADESH	62.65	3.05
ODISHA	53.64	2.61
HIMACHAL PRADESH	51.78	2.52
DVC	50.39	2.46
NTPC STATIONS SOUTHERN REGION	49.16	2.40
BALCO	47.85	2.33
KERALA	46.30	2.26
ASSAM	39.72	1.94
HARYANA	37.35	1.82
GUJARAT	35.50	1.73
CGPL(COASTAL GUJARAT POWER LTD)	35.17	1.71
TELANGANA	33.28	1.62
ESSAR STEEL	31.17	1.52
TAMIL NADU	30.87	1.50
UTTARAKHAND	29.38	1.43
GOA	29.01	1.41
DELHI	28.28	1.38
BIHAR	25.26	1.23
MP	23.27	1.13
NLC	22.12	1.08
CHANDIGARH	19.52	0.95
JHARKHAND	17.50	0.85
EMCO	16.38	0.80
TRIPURA	16.18	0.79
DAMAN AND DIU	14.62	0.71
ESSAR POWER	14.12	0.69
GMR CHHATTISGARH	12.94	0.63
KARCHAM WANGTOO	12.89	0.63
LANKO KONDAPALLI	11.90	0.58
DB POWER	11.09	0.54
NHPC STATIONS	11.07	0.54
JITPL	10.89	0.53
AD HYDRO	10.25	0.50
STERLITE	9.44	0.46

JORETHANG	8.49	0.41
SHREE CEMENT	7.64	0.37
JINDAL POWER	7.59	0.37
ACBIL	7.33	0.36
NSPCL	7.30	0.36
MEGHALAYA	6.37	0.31
MAITHON POWER LTD	6.37	0.31
DAGACHU	6.36	0.31
MIZORAM	5.42	0.26
DCPP(DONGA MAHUA CAPTIVE POWER PLANT)	5.31	0.26
GMR KAMALANGA	5.30	0.26
COASTGEN	5.18	0.25
RGPPPL(DABHOL)	4.87	0.24
ADHUNIK POWER LTD	4.81	0.23
NJPC	4.67	0.23
LANKO_AMK	4.38	0.21
MANIPUR	4.01	0.20
NEPAL(NVVN)	3.91	0.19
NAGALAND	3.88	0.19
ARUNACHAL PRADESH	3.83	0.19
SASAN UMPP	3.54	0.17
ILF&S	3.51	0.17
KORBA WEST POWER	3.36	0.16
PONDICHERRY	3.03	0.15
JHABUA POWER_MP	3.02	0.15
NEEPCO STATIONS	3.00	0.15
THERMAL POWERTECH	2.92	0.14
LANCO BUDHIL	2.84	0.14
MB POWER	2.59	0.13
SIKKIM	2.36	0.11
KSK MAHANADI	2.29	0.11
MALANA	2.00	0.10
URI-2	1.65	0.08
JAYPEE NIGRIE	1.54	0.08
DADRA & NAGAR HAVELI	1.34	0.07
DGEN MEGA POWER	1.21	0.06
SPECTRUM	1.03	0.05
DHARIWAL POWER	0.51	0.02
SIMHAPURI	0.45	0.02
RANGIT HEP	0.31	0.02
TEESTA HEP	0.27	0.01
CHUZACHEN HEP	0.24	0.01
LOKTAK	0.21	0.01
MEENAKSHI	0.19	0.01
ADANI HVDC	0.15	0.01
TOTAL	2051.92	100.00
Volume Imported by top 5 Regional Entities	558.83	27.23

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

Sr.No.	Name of the Entity	Total volume of net short-term transactions of electricity*
1	PUNJAB	916.05
2	HARYANA	889.10
3	RAJASTHAN	835.09
4	DELHI	763.67
5	UTTAR PRADESH	604.67
6	UTTARAKHAND	530.05
7	HIMACHAL PRADESH	299.83
8	J & K	297.49
9	CHANDIGARH	276.17
10	MP	253.18
11	MAHARASHTRA	237.14
12	GUJARAT	204.57
13	CHHATTISGARH	192.09
14	GOA	149.12
15	DAMAN AND DIU	125.78
16	DADRA & NAGAR HAVELI	100.26
17	ANDHRA PRADESH	65.34
18	KARNATAKA	58.73
19	KERALA	52.83
20	TAMIL NADU	52.00
21	PONDICHERRY	50.33
22	TELANGANA	46.72
23	WEST BENGAL	39.58
24	ODISHA	39.56
25	BIHAR	37.53
26	JHARKHAND	28.42
27	SIKKIM	28.38
28	DVC	15.75
29	ARUNACHAL PRADESH	5.43
30	ASSAM	3.02
31	MANIPUR	1.21
32	MEGHALAYA	1.14
33	MIZORAM	0.94
34	NAGALAND	0.15
35	KARCHAM WANGTOO	-0.05
36	SHREE CEMENT	-0.28
37	LANCO BUDHIL	-1.20
38	ADANI HVDC	-1.27
39	MALANA	-1.39
40	URI-2	-1.95
41	NTPC STATIONS WESTERN REGION	-2.08
42	JINDAL POWER	-2.73
43	LANKO_AMK	-2.86
44	NSPCL	-4.11
45	ACBIL	-5.29
46	BALCO	-5.92
47	RGPPPL(DABHOL)	-7.10

48	CGPL(COASTAL GUJARAT POWER LTD)	-7.32
49	DCPP(DONGA MAHUA CAPTIVE POWER PLANT)	-9.33
50	EMCO	-11.59
51	VANDANA VIDYUT	-12.21
52	ESSAR STEEL	-16.43
53	KSK MAHANADI	-17.33
54	ESSAR POWER	-21.29
55	JINDAL STAGE-II	-23.38
56	DB POWER	-23.68
57	DHARIWAL POWER	-24.61
58	JAYPEE NIGRIE	-26.89
59	DGEN MEGA POWER	-28.62
60	GMR CHHATTISGARH	-31.26
61	KORBA WEST POWER	-31.66
62	MB POWER	-32.52
63	MARUTI COAL	-34.42
64	SPECTRUM	-38.54
65	JHABUA POWER_MP	-43.35
66	SASAN UMPP	-45.43
67	NTPC STATIONS SOUTHERN REGION	-49.25
68	LANKO KONDAPALLI	-54.58
69	SIMHAPURI	-66.18
70	MEENAKSHI	-69.69
71	COASTGEN	-78.06
72	THERMAL POWERTECH	-82.55
73	ILF&S	-95.47
74	NLC	-96.59
75	NTPC STATIONS EASTERN REGION	-100.29
76	STERLITE	-101.66
77	MAITHON POWER LTD	-110.34
78	ADHUNIK POWER LTD	-111.93
79	CHUZACHEN HEP	-154.59
80	RANGIT HEP	-161.33
81	GMR KAMALANGA	-165.66
82	JITPL	-170.79
83	TEESTA HEP	-187.60
84	DAGACHU	-254.64
85	JORETHANG	-258.76
86	NEPAL(NV/N)	-304.80
87	NTPC STATIONS NORTH EASTERN REGION	-349.70
88	NEEPCO STATIONS	-424.32
89	RANGANADI HEP	-532.11
90	DOYANG HEP	-576.76
91	ONGC PALATANA	-727.24
92	LOKTAK	-746.99
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

Table-16: DETAILS OF CONGESTION IN POWER EXCHANGES, JULY 2016			
	Details of Congestion	IEX	PXIL
A	Unconstrained Cleared Volume* (MUs)	3648.81	13.97
B	Actual Cleared Volume and hence scheduled (MUs)	3580.52	13.96
C	Volume of electricity that could not be cleared and hence not scheduled because of congestion (MUs) (A-B)	68.29	0.01
D	Volume of electricity that could not be cleared as % to Unconstrained Cleared Volume	1.87%	0.10%
E	Percentage of the time congestion occurred during the month (Number of hours congestion occurred/Total number of hours in the month)	43.00%	13.10%
F	Congestion occurrence (%) time block wise		
	0.00 - 6.00 hours	3.94%	4.87%
	6.00 - 12.00 hours	35.83%	47.69%
	12.00 - 18.00 hours	32.36%	35.64%
	18.00 - 24.00 hours	27.87%	11.79%
<i>* This power would have been scheduled had there been no congestion.</i>			
<i>Source: IEX & PXIL & NLDC</i>			

Table-17: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY IN INDIA (DAY-WISE) (MUs), JULY 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-Jul-16	108.70	53.30	116.53	0.32	78.08	3141.62
2-Jul-16	110.91	60.42	122.78	0.31	83.74	2868.81
3-Jul-16	117.19	61.85	99.67	0.25	83.30	2762.33
4-Jul-16	119.00	61.54	108.86	0.53	75.03	2889.66
5-Jul-16	120.49	64.70	111.69	0.30	72.65	2964.06
6-Jul-16	119.91	67.68	101.94	0.23	81.00	2917.91
7-Jul-16	131.60	65.10	99.65	0.23	68.25	3059.55
8-Jul-16	130.45	70.37	113.03	0.23	77.24	3075.89
9-Jul-16	127.39	69.07	116.71	0.23	70.26	2939.45
10-Jul-16	125.63	62.66	103.51	0.20	69.61	2865.63
11-Jul-16	127.42	67.21	119.18	0.20	59.15	2985.49
12-Jul-16	133.54	66.76	115.05	0.20	61.26	3029.51
13-Jul-16	125.92	64.12	128.80	0.27	58.08	3173.90
14-Jul-16	126.22	65.36	127.07	0.21	66.54	3199.14
15-Jul-16	130.65	69.44	141.03	0.24	72.78	3165.70
16-Jul-16	120.50	56.40	131.61	0.48	71.89	2995.54
17-Jul-16	119.70	55.36	118.93	0.38	70.61	2802.61
18-Jul-16	131.32	53.82	124.87	0.85	71.80	2887.37
19-Jul-16	131.23	52.21	122.44	0.80	60.95	3029.55
20-Jul-16	132.65	51.67	111.64	0.74	52.90	3143.37
21-Jul-16	125.07	55.19	122.47	0.53	55.27	3184.60
22-Jul-16	127.77	53.72	119.41	0.23	54.98	3214.00
23-Jul-16	123.48	57.47	110.69	0.99	54.28	3181.00
24-Jul-16	115.95	56.11	95.07	0.52	56.09	3146.00
25-Jul-16	120.21	58.15	112.04	0.51	58.76	3270.00
26-Jul-16	123.58	57.70	110.62	0.89	55.65	3305.00
27-Jul-16	128.89	52.22	111.64	0.89	61.69	3165.00
28-Jul-16	131.50	53.63	115.07	1.05	60.70	3194.00
29-Jul-16	128.16	49.54	121.94	0.55	64.28	3074.00
30-Jul-16	133.00	50.84	123.74	0.23	65.68	3025.00
31-Jul-16	125.79	48.89	102.85	0.41	68.77	2927.00
Total	3873.80	1832.50	3580.52	13.96	2061.28	94582.69

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), JULY 2016

Market Segment	Day ahead market of IEX			Day ahead market of PXIL			Under Draw/Over Draw from the Grid (DSM)		
Date	Minimum ACP	Maximum ACP	Weighted Average Price*	Minimum ACP	Maximum ACP	Weighted Average Price*	All India Grid		
							Minimum Price	Maximum Price	Average Price**
1-Jul-16	1.50	3.58	2.38	2.00	2.50	2.27	0.00	3.45	1.62
2-Jul-16	1.89	3.32	2.37	2.05	2.50	2.25	0.00	3.24	1.01
3-Jul-16	1.00	2.44	1.90	2.23	2.55	2.34	0.00	5.32	1.03
4-Jul-16	1.40	2.89	2.15	1.25	2.30	2.19	0.00	6.16	1.82
5-Jul-16	1.50	2.62	2.16	1.90	2.30	2.13	0.00	5.32	2.08
6-Jul-16	1.70	2.60	2.04	1.98	2.31	2.15	0.00	5.32	1.36
7-Jul-16	1.71	3.58	2.11	1.98	2.56	2.10	0.36	6.36	2.45
8-Jul-16	1.87	3.01	2.29	1.98	2.14	2.10	0.00	5.32	1.74
9-Jul-16	1.87	3.00	2.29	1.98	2.35	2.26	0.00	3.24	1.36
10-Jul-16	1.74	2.62	2.04	1.98	2.51	2.26	0.00	2.41	1.04
11-Jul-16	1.84	2.61	2.24	1.98	2.51	2.25	0.00	3.03	1.31
12-Jul-16	1.81	3.00	2.19	1.98	2.53	2.21	0.00	3.24	1.45
13-Jul-16	1.85	2.78	2.19	1.98	2.65	2.25	0.00	3.45	1.69
14-Jul-16	1.87	4.50	2.23	1.98	2.65	2.20	0.00	5.11	1.86
15-Jul-16	2.03	5.70	2.42	1.98	2.17	2.12	0.00	3.45	1.79
16-Jul-16	1.99	5.51	2.36	1.98	2.60	2.34	0.00	3.24	1.25
17-Jul-16	1.70	4.50	2.17	1.98	2.39	2.31	0.00	2.41	0.83
18-Jul-16	1.78	5.63	2.23	1.90	2.37	2.28	0.00	3.45	1.23
19-Jul-16	1.54	5.12	2.20	1.90	2.37	2.26	0.00	3.45	1.70
20-Jul-16	1.35	4.63	2.15	1.98	2.49	2.36	0.00	3.24	1.87
21-Jul-16	1.35	4.50	2.24	1.90	2.59	2.33	0.00	3.45	1.50
22-Jul-16	1.44	4.50	2.27	2.03	2.03	2.03	0.00	3.45	1.69
23-Jul-16	1.64	6.50	2.25	2.10	3.10	2.87	0.00	5.74	1.84
24-Jul-16	1.10	2.69	1.78	1.80	2.40	2.31	0.00	3.45	1.63
25-Jul-16	1.54	3.83	2.28	1.55	2.40	2.28	0.36	6.16	2.28
26-Jul-16	1.80	3.98	2.34	1.50	2.54	2.45	0.00	3.24	1.70
27-Jul-16	1.50	4.13	2.26	1.70	2.50	2.44	0.00	3.03	1.53
28-Jul-16	1.50	4.20	2.20	1.40	2.48	2.41	0.00	3.45	1.74
29-Jul-16	1.50	4.32	2.17	1.90	2.48	2.29	0.00	2.41	1.08
30-Jul-16	1.72	5.15	2.17	2.10	2.10	2.10	0.00	3.24	1.38
31-Jul-16	1.00	5.27	1.78	1.90	2.42	2.25	0.00	3.24	1.21
	1.61#	3.96#	2.19	1.90#	2.44#	2.33	0.00	6.36	1.55

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),
JULY 2016**

Name of the Entity	Through Bilateral			Through Power Exchange			Through DSM with Regional Grid			Total Net***
	Sale	Pur- chase	Net**	Sale	Pur- chase	Net**	Import (Over Drawl)	Export (Under Drawl)	Net**	
PUNJAB	0.00	459.90	459.90	0.00	411.78	411.78	100.90	56.53	44.37	916.05
HARYANA	0.00	636.18	636.18	52.33	257.48	205.16	37.35	115.01	-77.67	763.67
RAJASTHAN	289.72	0.00	-289.72	23.08	400.17	377.09	90.39	51.97	38.42	125.78
DELHI	12.30	407.39	395.09	180.31	42.19	-138.12	28.28	48.10	-19.83	237.14
UTTAR PRADESH	30.07	751.31	721.23	0.00	25.70	25.70	145.13	56.98	88.15	835.09
UTTARAKHAND	10.87	40.71	29.84	0.00	267.21	267.21	29.38	26.60	2.78	299.83
HIMACHAL PRADESH	637.22	0.00	-637.22	185.68	50.24	-135.44	51.78	6.36	45.42	-727.24
J & K	496.76	0.00	-496.76	40.68	5.33	-35.35	0.00	0.00	0.00	-532.11
CHANDIGARH	0.00	11.16	11.16	1.15	1.62	0.47	19.52	2.77	16.74	28.38
MP	81.85	12.42	-69.43	155.93	59.32	-96.61	23.27	111.87	-88.60	-254.64
MAHARASHTRA	2.08	681.55	679.47	126.00	91.88	-34.11	77.44	118.13	-40.69	604.67
GUJARAT	249.66	47.25	-202.41	201.29	479.69	278.40	35.50	95.75	-60.24	15.75
CHHATTISGARH	188.00	142.45	-45.54	60.97	97.36	36.39	85.74	23.77	61.98	52.83
GOA	0.00	0.91	0.91	0.48	21.06	20.58	29.01	3.77	25.24	46.72
DAMAN AND DIU	0.00	0.00	0.00	0.00	39.29	39.29	14.62	1.92	12.70	52.00
D & N HAVELI	0.00	0.00	0.00	0.00	213.66	213.66	1.34	10.43	-9.08	204.57
ANDHRA PRADESH	14.30	85.93	71.63	16.65	195.59	178.93	62.65	37.04	25.60	276.17
KARNATAKA	13.38	0.00	-13.38	26.35	209.76	183.41	81.51	59.45	22.06	192.09
KERALA	0.00	0.45	0.45	40.36	38.26	-2.11	46.30	5.06	41.24	39.58
TAMIL NADU	11.39	42.97	31.58	35.11	23.26	-11.84	30.87	152.27	-121.40	-101.66
PONDICHERRY	0.00	0.00	0.00	0.00	3.10	3.10	3.03	8.22	-5.19	-2.08
TELANGANA	7.36	670.42	663.06	63.49	298.82	235.33	33.28	42.57	-9.29	889.10
WEST BENGAL	12.67	352.57	339.90	15.80	147.76	131.97	72.38	14.20	58.18	530.05
ODISHA	30.03	67.88	37.85	21.76	49.10	27.35	53.64	18.58	35.07	100.26
BIHAR	0.00	297.14	297.14	0.00	40.30	40.30	25.26	65.21	-39.95	297.49
JHARKHAND	0.00	161.88	161.88	0.00	0.00	0.00	17.50	30.26	-12.76	149.12
SIKKIM	10.80	0.00	-10.80	51.29	0.00	-51.29	2.36	9.96	-7.60	-69.69
DVC	27.56	0.00	-27.56	18.12	1.58	-16.54	50.39	22.72	27.67	-16.43
ARUNACHAL PRADESH	0.00	0.00	0.00	30.20	0.00	-30.20	3.83	6.14	-2.32	-32.52
ASSAM	44.51	13.63	-30.88	64.93	51.21	-13.72	39.72	12.45	27.27	-17.33
MANIPUR	17.19	0.59	-16.61	25.68	0.00	-25.68	4.01	5.07	-1.06	-43.35
MEGHALAYA	30.67	2.52	-28.15	7.33	9.49	2.15	6.37	8.99	-2.62	-28.62
MIZORAM	0.00	0.00	0.00	36.32	0.00	-36.32	5.42	0.77	4.66	-31.66
NAGALAND	0.00	0.00	0.00	11.30	0.12	-11.18	3.88	4.29	-0.41	-11.59
TRIPURA	0.53	0.00	-0.53	45.79	0.32	-45.47	16.18	4.60	11.58	-34.42
NTPC STATIONS NR	0.00	0.00	0.00	8.67	0.00	-8.67	105.13	31.11	74.01	65.34
NHPC STATIONS	0.00	0.00	0.00	69.53	0.00	-69.53	11.07	41.83	-30.77	-100.29
NJPC	0.00	0.00	0.00	27.95	0.00	-27.95	4.67	1.33	3.34	-24.61
AD HYDRO	43.64	0.00	-43.64	39.22	0.00	-39.22	10.25	5.45	4.80	-78.06

KARCHAM WANGTOO	111.26	0.00	-111.26	320.17	0.00	-320.17	12.89	5.77	7.11	-424.32
SHREE CEMENT	169.55	0.00	-169.55	7.07	0.00	-7.07	7.64	1.81	5.83	-170.79
LANCO BUDHIL	0.00	0.00	0.00	5.89	0.00	-5.89	2.84	1.06	1.78	-4.11
ADANI HVDC	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.15	0.15
MALANA	0.00	0.00	0.00	8.51	0.00	-8.51	2.00	0.59	1.41	-7.10
URI-2	0.00	0.00	0.00	0.00	0.00	0.00	1.65	6.94	-5.29	-5.29
NTPC STATIONS WR	0.00	0.00	0.00	0.34	0.00	-0.34	117.28	116.00	1.29	0.94
JINDAL POWER	102.97	0.00	-102.97	159.43	0.00	-159.43	7.59	3.95	3.64	-258.76
LANKO_AMK	8.56	0.00	-8.56	0.00	0.00	0.00	4.38	3.13	1.24	-7.32
NSPCL	25.63	0.00	-25.63	0.00	0.00	0.00	7.30	5.35	1.94	-23.68
ACBIL	7.32	0.00	-7.32	43.83	0.00	-43.83	7.33	1.62	5.72	-45.43
BALCO	0.00	0.00	0.00	7.30	0.00	-7.30	47.85	1.00	46.86	39.56
RGPPL(DABHOL)	0.00	0.00	0.00	0.00	0.00	0.00	4.87	3.74	1.14	1.14
CGPL	0.00	0.00	0.00	0.00	0.00	0.00	35.17	6.74	28.42	28.42
DCPP	0.00	0.00	0.00	6.73	0.00	-6.73	5.31	1.44	3.87	-2.86
EMCO	0.00	0.00	0.00	10.14	0.00	-10.14	16.38	8.97	7.41	-2.73
VANDANA VIDYUT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	-0.05	-0.05
ESSAR STEEL	0.00	177.32	177.32	0.00	61.86	61.86	31.17	17.16	14.01	253.18
KSK MAHANADI	0.00	0.00	0.00	0.00	0.00	0.00	2.29	3.67	-1.39	-1.39
ESSAR POWER	178.97	0.00	-178.97	0.00	0.00	0.00	14.12	0.81	13.31	-165.66
JINDAL STAGE-II	21.29	0.00	-21.29	0.00	0.00	0.00	0.00	0.00	0.00	-21.29
DB POWER	267.31	0.00	-267.31	91.41	0.00	-91.41	11.09	2.07	9.02	-349.70
DHARIWAL POWER	0.00	0.00	0.00	6.17	0.00	-6.17	0.51	0.26	0.25	-5.92
JAYPEE NIGRIE	0.00	0.00	0.00	148.71	0.00	-148.71	1.54	7.43	-5.89	-154.59
DGEN MEGA POWER	0.00	0.00	0.00	0.00	0.00	0.00	1.21	0.00	1.21	1.21
GMR CHHATTISGARH	10.07	0.00	-10.07	24.25	0.00	-24.25	12.94	2.00	10.94	-23.38
KORBA WEST POWER	181.80	0.00	-181.80	9.13	0.00	-9.13	3.36	0.02	3.34	-187.60
MB POWER	0.00	0.00	0.00	1.46	0.00	-1.46	2.59	3.08	-0.49	-1.95
MARUTI COAL	0.00	0.00	0.00	66.18	0.00	-66.18	0.00	0.00	0.00	-66.18
SPECTRUM	0.00	0.00	0.00	13.23	0.00	-13.23	1.03	0.00	1.02	-12.21
JHABUA POWER_MP	0.00	0.00	0.00	0.00	0.00	0.00	3.02	0.00	3.02	3.02
NTPC STATIONS SR	0.00	0.00	0.00	0.59	0.00	-0.59	49.16	11.05	38.11	37.53
LANKO KONDAPALLI	122.50	0.00	-122.50	1.07	0.00	-1.07	11.90	0.26	11.64	-111.93
SIMHAPURI	32.17	0.00	-32.17	76.37	0.00	-76.37	0.45	2.25	-1.79	-110.34
MEENAKSHI	10.42	0.00	-10.42	84.38	0.00	-84.38	0.19	0.86	-0.67	-95.47
COASTGEN	25.10	0.00	-25.10	4.81	0.00	-4.81	5.18	2.16	3.02	-26.89
THERMAL POWERTECH	526.70	0.00	-526.70	48.99	0.00	-48.99	2.92	3.99	-1.07	-576.76
ILF&S	38.01	0.00	-38.01	1.02	0.00	-1.02	3.51	3.02	0.49	-38.54
NTPC STATIONS ER	0.00	0.00	0.00	0.00	0.00	0.00	68.50	18.17	50.33	50.33
STERLITE	58.67	0.00	-58.67	0.00	0.00	0.00	9.44	0.02	9.42	-49.25
MAITHON POWER	0.00	0.00	0.00	0.00	0.00	0.00	6.37	7.63	-1.27	-1.27
ADHUNIK POWER	162.16	0.00	-162.16	2.69	0.00	-2.69	4.81	1.30	3.51	-161.33
CHUZACHEN HEP	0.00	0.00	0.00	79.03	0.00	-79.03	0.24	3.76	-3.52	-82.55

RANGIT HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.31	1.52	-1.20	-1.20
GMR KAMALANGA	278.90	0.00	-278.90	15.32	0.00	-15.32	5.30	15.88	-10.58	-304.80
JITPL	223.50	0.00	-223.50	519.81	0.00	-519.81	10.89	14.58	-3.69	-746.99
TEESTA HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.27	9.60	-9.33	-9.33
DAGACHU	33.88	0.00	-33.88	0.00	0.00	0.00	6.36	3.74	2.62	-31.26
JORETHANG	0.00	0.00	0.00	57.76	0.00	-57.76	8.49	5.30	3.19	-54.58
NEPAL(NWN)	0.00	55.22	55.22	0.00	0.00	0.00	3.91	0.40	3.52	58.73
NEEPCO STATIONS	0.00	0.00	0.00	67.08	0.00	-67.08	3.00	32.52	-29.51	-96.59
ONGC PALATANA	0.00	5.43	5.43	0.00	0.00	0.00	0.00	0.00	0.00	5.43
LOKTAK	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.48	-0.28	-0.28
TOTAL	4859.32	5125.19	265.87	3594.40	3594.48	21.89	2051.92	1741.94	365.56	653.33

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 August 2016

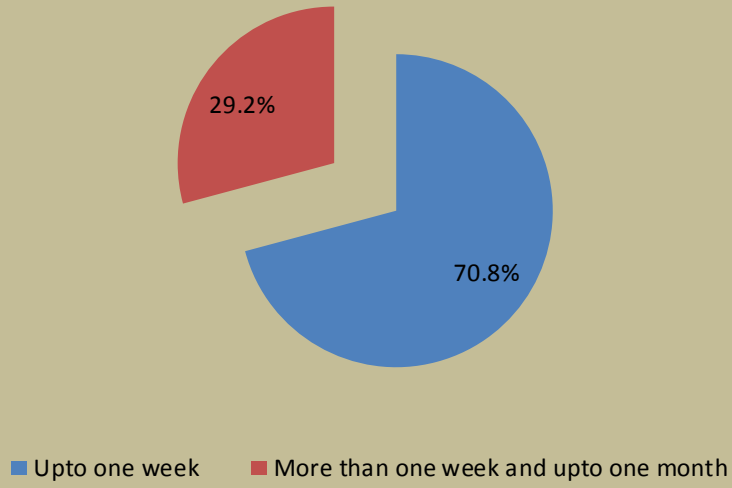


Figure-8: Forward Curve based on Prices of Bilateral Contracts

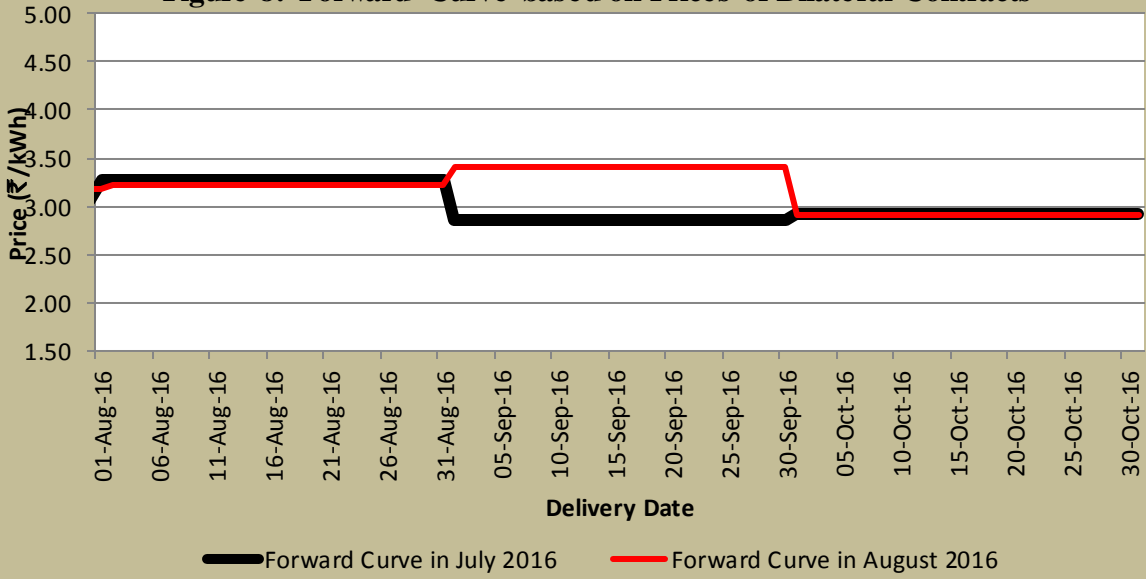


Table-20 : VOLUME AND PRICE OF RENEWABLE ENERGY CERTIFICATES (RECs) TRANSACTIONED THROUGH POWER EXCHANGES, JULY 2016					
Sr.No.	Details of REC Transactions	IEX		PXIL	
		Solar	Non-Solar	Solar	Non Solar
A	Volume of Buy Bid	23944	139250	14029	95757
B	Volume of Sell Bid	2036891	7287207	1447749	5637674
C	Ratio of Buy Bid to Sell Bid Volume	0.012	0.019	0.010	0.017
D	Market Clearing Volume (MWh)	23944	139250	14029	95757
E	Market Clearing Price (₹/MWh)	3500	1500	3500	1500

Source: IEX and PXIL

Note 1: 1 REC = 1 MWh

Note 2:

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