

Monthly Report on Short-term Transactions of Electricity in India

July, 2017



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



Contents

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

List of Tables and Figures

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

Abbreviations

Abbreviation	Expanded Version
ACBIL	ACB (India) Limited
ACP	Area Clearing Price
ACV	Area Clearing Volume
Adani HVDC	Adani Power Limited (High Voltage Direct Line Current Line)
AD HYDRO	AD Hydro Power Limited
BALCO	Bharat Aluminum Company Limited
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CGPL	Coastal Gujarat Power Limited
CHUZACHEN HEP	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
LANCO BUDHIL	LancoBudhil Hydro Power Private Limited
LANKOAMK	LancoAmarkantak Power Private Limited
LANKOKONDAPALLY	LancoKondapally Power Private Limited
LOKTAK	Loktak Power Project
MALANA	Malana Hydroelectric Plant
Maruti Coal	Maruti Clean Coal and Power Limited
MB POWER	MB Power Ltd
MEENAKSHI	Meenakshi Energy Private Limited
MP	Madhya Pradesh
MUs	Million Units

NEEPCO	North Eastern Electric Power Corporation Limited
NHPC STATIONS	National Hydro Electric Power Corporation Ltd. Stations
NLC	Neyveli Lignite Corporation Limited
NTPC STATIONS	National Thermal Power Corporation Ltd. Stations
NJPC	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
SEMBCORP	Sembcorp Gayatri Power Ltd
SHREE CEMENT	Shree Cement Limited
SIMHAPURI	Simhapuri Energy Private Limited
SPECTRUM	Spectrum Power Generation Ltd
TEESTA STG3	TEESTA STG3 Hydro Power Project

Introduction

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

I: Volume of Short-term Transactions of Electricity

During July 2017, total electricity generation excluding generation from renewable and captive power plants in India was 97911.72 MUs (Table-1).

Of the total electricity generation, 11252.67 MUs (11.49%) was transacted through short-term, comprising of 5608.76 MUs (5.73%) through bilateral (through traders and term-ahead contracts on power exchanges and directly between distribution companies), followed by 3673.92 MUs (3.75%) through day ahead collective transactions on power exchanges (IEX and PXIL) and 1969.99 MUs (2.01%) through DSM (Table-1 & Figure-2).

Of the total short-term transactions, bilateral constitutes 49.84% (35.76% through traders and term-ahead contracts on power exchanges and 14.09% directly between distribution companies) followed by 32.65% through day ahead collective transactions on power exchanges and 17.51% through DSM (Table-1 & Figure-1). Daily volume of short-term transactions is shown in Table-17 & Figure-3.

The percentage share of electricity traded by each trading licensee in the total volume of electricity traded by all the trading licensees is provided in Table-2 & Figure-4. The volume of electricity transacted by the trading licensees includes bilateral transactions and the transactions undertaken through power exchanges. There were 35 trading licensees as on July, 2017. In July, 2017, 23 trading licensees were engaged in short term trading. Top 5 trading licensees had a share of 71.86% in the total volume traded by all the licensees. These are PTC India Ltd., Mittal Processor (P) Ltd., Manikaran Power Ltd., GMR Energy Trading Ltd. and Tata Power Trading Company Pvt. Ltd.

Herfindahl-Hirschman Index (HHI) has been used for measuring the competition among the trading licensees. Increase in the HHI generally indicates decrease in competition and increase of market concentration, and vice versa. The HHI below 0.15 indicates non-concentration, HHI between 0.15 and 0.25 indicates moderate concentration and HHI above 0.25 indicates high concentration. The HHI has been computed based on the volume of electricity traded (inter-State & intra-State) by inter-State trading licensees, and it was 0.1626 for the month of July, 2017, which indicates moderate concentration of market power (Table-2).

The volume of electricity transacted through IEX and PXIL in the day ahead market was 3668.77 MUs and 5.16 MUs respectively. The volume of total buy bids and sell bids was 4295.09 MUs and 6687.45 MUs respectively in IEX while the same was 10.72 MUs and 54.51 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 59.72 MUs and 15.81 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 ₹2.35/kWh, ₹4.70/kWh and ₹3.30/kWh respectively (Table-3). The weighted average sale prices were also computed for the transactions during Round

the Clock (RTC), Peak and Off-peak periods separately, and the sale prices were ₹3.26/kWh, ₹4.30/kWh, and ₹3.38/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 ₹0.50/kWh, ₹6.03/kWh and ₹2.65/kWh respectively in IEX and ₹1.05/kWh, ₹5.20/kWh and ₹3.52/kWh respectively in PXIL (Table-5).

The price of electricity transacted through IEX and PXIL in the term-ahead market was ₹3.54/kWh and ₹3.42/kWh respectively (Table-6 and Table-7).

(iii) Price of electricity transacted through DSM: The average deviation settlement price was ₹1.79/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 46.01% of the volume, and these were Himachal Pradesh, Jammu & Kashmir, West Bengal, Arunachal Pradesh and NTPC Tamil Nadu Energy Company Limited. Top 5 regional entities purchased 59.76% of the volume, and these were Punjab, Delhi, Haryana, Uttar Pradesh and Jharkhand (Table-9 & 10).

Of the total power exchange transactions, top 5 regional entities sold 53.58% of the volume, and these were Arunachal Pradesh, Dikchu Hydro Electric Project, Madhya Pradesh, Gujarat and Himachal Pradesh. Top 5 regional entities purchased 49.30% of the volume, and these were Rajasthan, Maharashtra, Odisha, Andhra Pradesh and Karnataka (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 27.48% of the volume, and these were Jindal Power Limited, Gujarat, Tamil Nadu, Haryana and West Bengal (Table-13). Top 5 regional entities overdrew 27.46% of the volume, and these were Uttar Pradesh, West Bengal, Arunachal Pradesh, Andhra Pradesh and Maharashtra (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, Arunachal Pradesh, Jammu & Kashmir, Madhya Pradesh and Dikchu Hydro Electric Project. Top 5 electricity purchasing regional entities were Punjab, Haryana, Uttar Pradesh, Delhi and Jharkhand.

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, congestion occurred in IEX. 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

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.

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 due to congestion was 1.14% of the unconstrained cleared volume. In terms of time, congestion occurred was 23.66% in IEX (Table-16). There was no congestion witnessed in PXIL.

V: Bilateral Contracts executed by Traders

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

(i) Duration of bilateral contracts: During August, 2017, a total of 108 bilateral contracts (excluding banking/swap contracts) have been executed by traders for the volume of 1598.23 MUs. Figure-7 shows the percentage of contracts categorized according to the period of power supply. It can be observed from the figure that 81.5% 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, 1.9% of the contracts were executed for duration of more than one month and upto 3 months, while no contracts were executed for duration of more than 3 months and upto 12 months.

During the month, 66 banking/swapping bilateral contracts were also executed for the volume of 1213.95 MUs.

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

Figure-8 represents the forward curve of electricity sale prices for the period from 1st August, 2017 to 10th October, 2017 based on the bilateral contracts⁴ executed till August, 2017. Forward curves have been drawn for the contracts executed in July, 2017 and August,

⁴Excluding Banking/Swapping contracts

2017 for the purpose of comparison. It is observed that forward contract prices are significantly higher (for the period from 1st August to 6th August 2017) for the contracts executed in August, 2017 compared to the contracts executed in July, 2017, after which, the prices of both the contracts have been moving together.

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 July, 2011.

Trading in Renewable Energy Certificates (RECs) which was stayed by the Supreme Court in May 2017 has been allowed in July, 2017. However, the order restricted the trading of non-solar RECs on the condition to comply with the earlier prices.

The details of REC transactions for the month of July, 2017 are shown in Table-20. Market clearing volume of non-solar RECs transacted on IEX and PXIL were 378417 and 116878 respectively and the market clearing price of these RECs was ₹1500/MWh on both the power exchanges.

The gap between the volume of buy and sell bids of RECs placed through power exchanges shows about the variation in demand for non-solar RECs. For non-solar RECs, the ratio of buy bids to sell bids was 0.043 and 0.035 for IEX and PXIL respectively.

VII: Inferences:

- The percentage of short-term transactions of electricity to total electricity generation was 11.49%.
- Of the total short-term transactions of electricity, 49.84% was transacted through bilateral (through traders and term ahead contracts on power exchanges and directly by distribution companies), followed by 32.65% through power exchanges and 17.51% through DSM.
- Top 5 trading licensees had a share of 71.86% 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 0.1626, indicating moderate concentration of market power.
- The weighted average price of electricity transacted through trading licensees was ₹3.30/kWh. The weighted average prices of electricity transacted through IEX and PXIL were ₹2.65/kWh and ₹3.52/kWh respectively.
- The average price of electricity transacted through DSM was ₹1.79/kWh.
- Top 5 electricity selling regional entities were Himachal Pradesh, Arunachal Pradesh, Jammu & Kashmir, Madhya Pradesh and Dikchu Hydro Electric Project. Top 5 electricity purchasing regional entities were Punjab, Haryana, Uttar Pradesh, Delhi and Jharkhand.
- The volume of electricity that could not be cleared in IEX due to congestion was 1.14% of the unconstrained cleared volume. In terms of time, congestion occurred was 23.66% in IEX (Table-16). There was no congestion witnessed in PXIL.
- In August, 2017, 81.5% 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, 1.9% of the contracts were executed for duration of more than one month and upto 3 months, while no bilateral contracts were executed for duration of more than three months and upto 12 months.

- The forward curve of electricity sale prices for the period from 1st August, 2017 to 10th October, 2017 based on the bilateral contracts⁵ executed till August, 2017 shows that forward contract prices are significantly higher (for the period from 1st August to 6th August 2017) for the contracts executed in August, 2017 compared to the contracts executed in July, 2017, after which, the prices of both the contracts have been moving together.
- Trading in Renewable Energy Certificates (RECs) which was stayed by the Supreme Court in May 2017 has been allowed in July, 2017. However, the order restricted the trading of non-solar RECs on the condition to comply with the earlier prices. Market clearing volume of non-solar RECs transacted on IEX and PXIL were 378417 and 116878 respectively and the market clearing price of these RECs was ₹1500/MWh on both the power exchanges.

⁵*Excluding Banking/Swapping contracts*

Table-1: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (ALL INDIA), JULY 2017				
Sr.No	Short-term transactions	Volume (MUs)	% to Volume of short-term transactions	% to Total Generation
1	Bilateral	5608.76	49.84	5.73
	(i) Through Traders and PXs	4023.51	35.76	4.11
	(ii) Direct	1585.25	14.09	1.62
2	Through Power Exchanges	3673.92	32.65	3.75
	(i) IEX	3668.77	32.60	3.75
	(ii) PXIL	5.16	0.05	0.005
3	Through DSM	1969.99	17.51	2.01
	Total	11252.67	-	11.49
	Total Generation	97911.72	-	-

Source: NLDC

Figure-1: Volume of Short-term Transactions of Electricity, July 2017

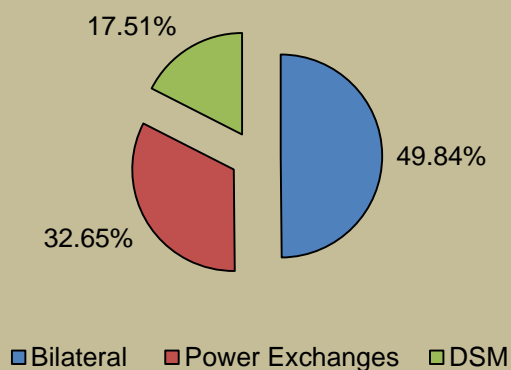
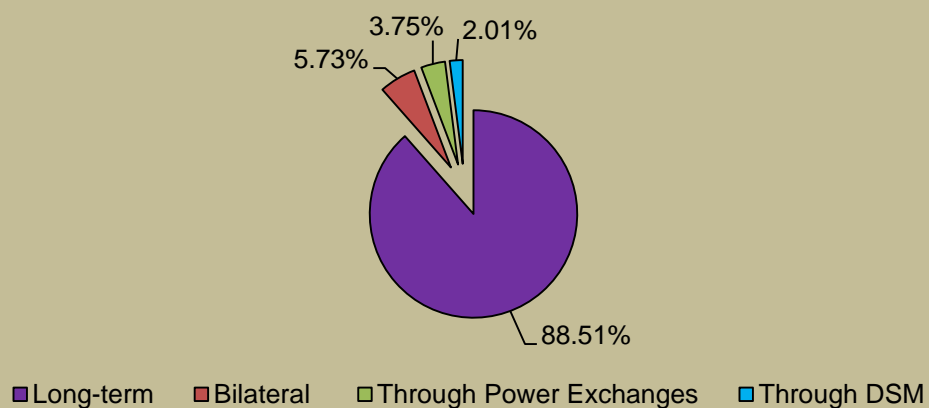


Figure-2: Volume of Various Kinds of Electricity Transactions in Total Electricity Generation, July 2017



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

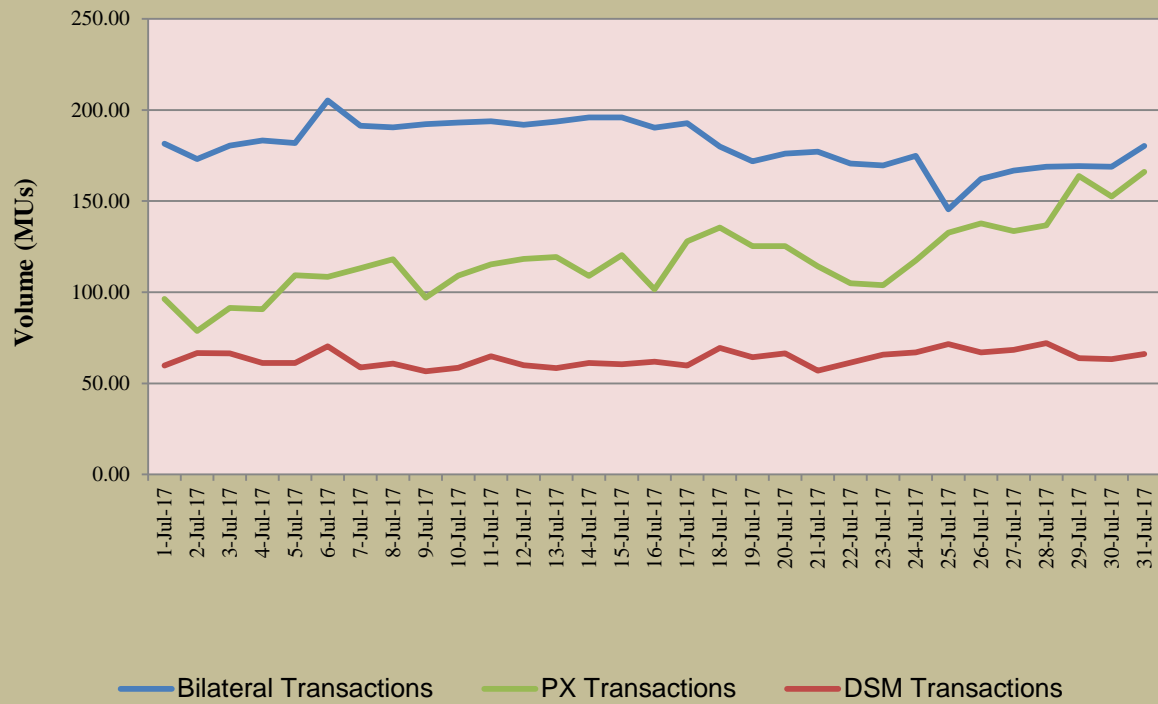


Table-2: PERCENTAGE SHARE OF ELECTRICITY TRANSACTED BY TRADING LICENSEES, JULY 2017			
Sr.No	Name of the Trading Licensee	% Share in total Volume transacted by Trading Licensees	Herfindahl-Hirschman Index
1	PTC India Ltd.	33.27	0.1107
2	Mittal Processors (P) Ltd.	14.06	0.0198
3	Manikaran Power Ltd.	10.15	0.0103
4	GMR Energy Trading Ltd.	8.10	0.0066
5	Tata Power Trading Company (P) Ltd.	6.28	0.0039
6	Arunachal Pradesh Power Corporation (P) Ltd	6.26	0.0039
7	NTPC Vidyut Vyapar Nigam Ltd.	6.23	0.0039
8	JSW Power Trading Company Ltd	4.32	0.0019
9	Jaiprakash Associates Ltd.	2.29	0.0005
10	Statkraft Markets Pvt. Ltd.	2.10	0.0004
11	Adani Enterprises Ltd.	1.81	0.0003
12	National Energy Trading & Services Ltd.	1.15	0.0001
13	Knowledge Infrastructure Systems (P) Ltd	1.05	0.0001
14	Essar Electric Power Development Corp. Ltd.	0.61	0.0000
15	RPG Power Trading Company Ltd.	0.52	0.0000
16	Instinct Infra & Power Ltd.	0.43	0.0000
17	Shyam Indus Power Solutions Private Limited	0.36	0.0000
18	Customized Energy Solutions India (P) Ltd.	0.36	0.0000
19	Shree Cement Ltd.	0.28	0.0000
20	Parshavanath Power Projects Private Limited	0.23	0.0000
21	Gita Power & Infrastructure Private Limited	0.12	0.0000
22	Phillip Commodities India (P) Ltd.	0.03	0.0000
23	My Home Power Private Ltd.	0.01	0.0000
TOTAL		100.00%	0.1626
Top 5 trading licensees		71.86%	
<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>			

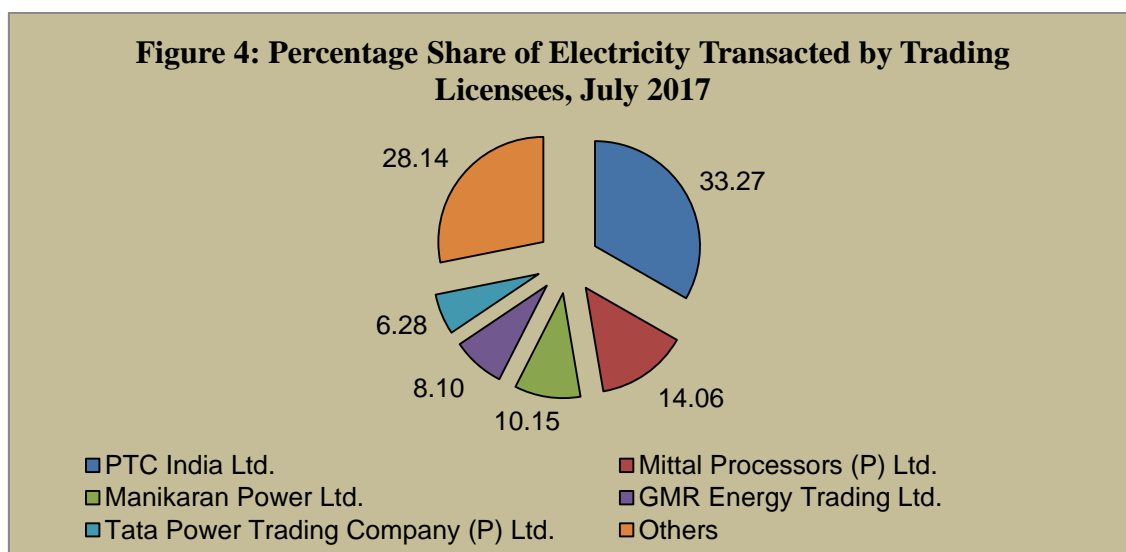


Table-3: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS, JULY 2017		
Sr.No	Item	Sale Price of Traders (₹/kWh)
1	Minimum	2.35
2	Maximum	4.70
3	Weighted Average	3.30
Source: Information submitted by trading licensees		

Table-4: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS (TIME-WISE), JULY 2017		
Sr.No	Period of Trade	Sale Price of Traders (₹/kWh)
1	RTC	3.26
2	PEAK	4.30
3	OFF PEAK	3.38
Source: Information submitted by trading licensees		

Table-5: PRICE OF ELECTRICITY TRANSACTED THROUGH POWER EXCHANGES, JULY 2017			
Sr.No	ACP	Price in IEX (₹/kWh)	Price in PXIL (₹/kWh)
1	Minimum	0.50	1.05
2	Maximum	6.03	5.20
3	Weighted Average	2.65	3.52
Source: Information submitted by IEX and PXIL			

Table-6: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF IEX, JULY 2017			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	44.74	3.71
2	Day Ahead Contingency Contracts	14.98	3.03
	Total	59.72	3.54
Source: IEX			

Table-7: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF PXIL, JULY 2017			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	15.81	3.42
	Total	15.81	3.42
Source: PXIL			

Table-8: PRICE OF ELECTRICITY TRANSACTED THROUGH DSM, JULY 2017		
Sr.No	Item	Price in All India Grid (₹/kWh)
1	Minimum	0.00
2	Maximum	6.36
3	Average	1.79
Source: NLDC		

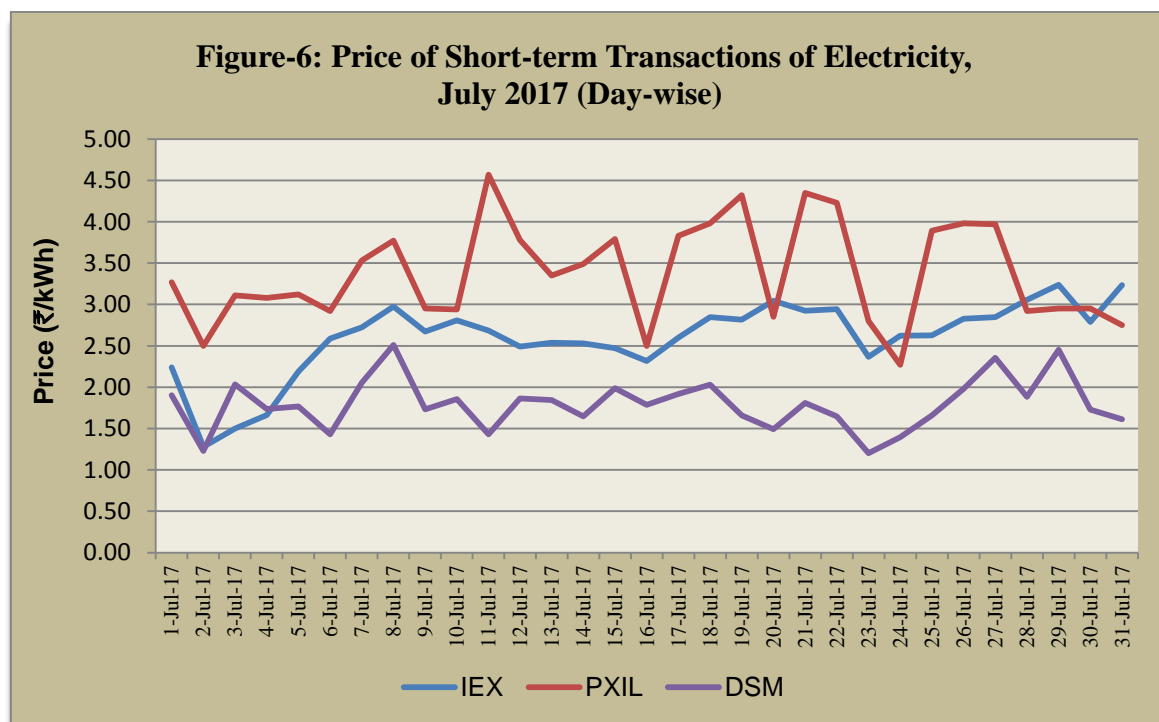
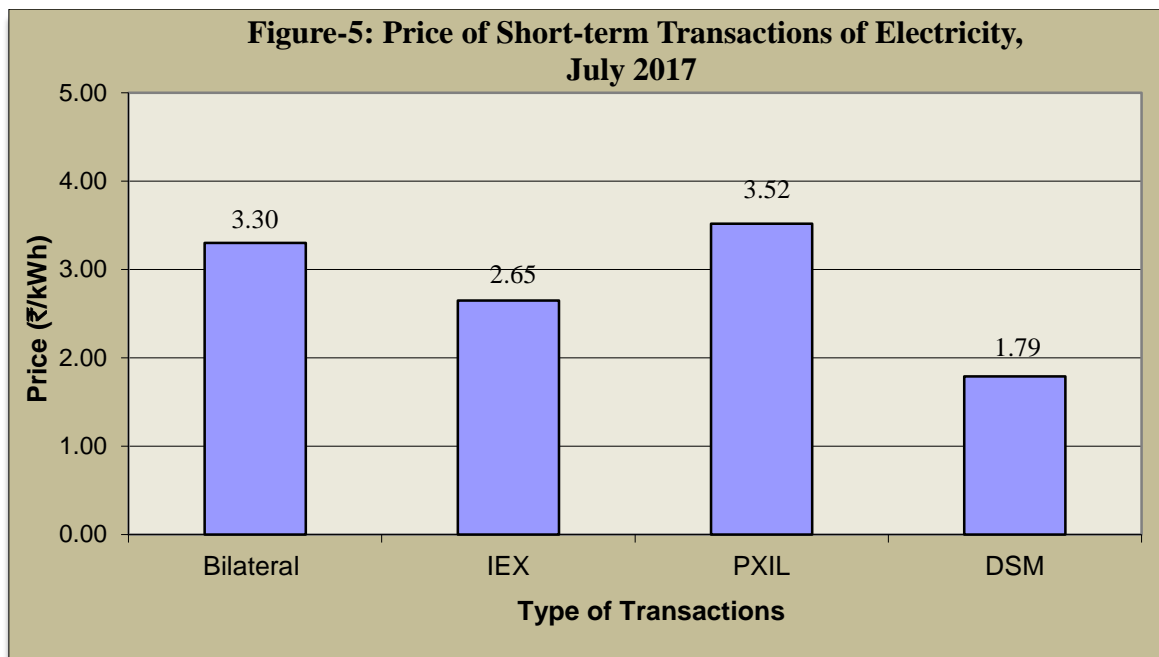


Table-9: VOLUME OF ELECTRICITY SOLD THROUGH BILATERAL, JULY 2017		
Name of the Entity	Volume of Sale (MUs)	% of Volume
HIMACHAL PRADESH	994.06	15.33
J & K	581.08	8.96
WEST BENGAL	504.87	7.78
ARUNACHAL PRADESH	457.48	7.05
NETCL VALLUR	446.38	6.88
MP	301.94	4.66
UTTARAKHAND	271.89	4.19
JINDAL STAGE-II	246.02	3.79
DHARIWAL POWER	228.64	3.53
ANDHRA PRADESH	209.09	3.22
RAJASTHAN	194.33	3.00
ODISHA	188.95	2.91
GUJARAT	186.34	2.87
KORBA WEST POWER	186.18	2.87
SHREE CEMENT	182.69	2.82
LANCO_AMK	157.30	2.43
CHUZACHEN HEP	134.13	2.07
MARUTI COAL	128.71	1.98
JITPL	123.72	1.91
DGEN MEGA POWER	111.39	1.72
TEESTA HEP	86.12	1.33
JORETHANG	75.21	1.16
MAHARASHTRA	75.18	1.16
MIZORAM	71.49	1.10
ILF&S	56.89	0.88
LOKTAK	48.36	0.75
BALCO	39.41	0.61
LANCO BUDHIL	38.30	0.59
RANGIT HEP	21.61	0.33
MANIPUR	17.48	0.27
MEGHALAYA	16.69	0.26
DB POWER	15.28	0.24
RGPPL (DABHOL)	14.07	0.22
KARNATAKA	11.73	0.18
NSPCL	9.90	0.15
KARCHAM WANGTOO	8.28	0.13
SPECTRUM	7.55	0.12
KERALA	6.00	0.09
DIKCHU HEP	5.93	0.09
TAMIL NADU	5.08	0.08
GOA	4.29	0.07
DELHI	3.65	0.06
JHABUA POWER_MP	3.06	0.05
NEPAL(NVVN)	2.91	0.04
TRIPURA	2.21	0.03
THERMAL POWERTECH	1.60	0.02
HARYANA	1.25	0.02
STERLITE	1.06	0.02
Total	6485.77	100.00
Volume Sold by top 5 Regional Entities	2983.87	46.01

Table-10: VOLUME OF ELECTRICITY PURCHASED THROUGH BILATERAL, JULY 2017		
Name of the Entity	Volume of Purchase (MUs)	% of Volume
PUNJAB	1432.40	24.66
DELHI	660.98	11.38
HARYANA	620.31	10.68
UTTAR PRADESH	390.95	6.73
JHARKHAND	366.15	6.30
MAHARASHTRA	334.73	5.76
TAMIL NADU	310.37	5.34
ARUNACHAL PRADESH	256.05	4.41
KSK MAHANADI	229.09	3.94
ANDHRA PRADESH	199.68	3.44
TEESTA STG3	180.68	3.11
CHHATTISGARH	146.36	2.52
SIKKIM	116.26	2.00
BANGLADESH	75.37	1.30
ODISHA	70.82	1.22
BIHAR	66.62	1.15
UTTARAKHAND	66.15	1.14
MANIPUR	63.09	1.09
KERALA	61.27	1.05
DADRA & NAGAR HAVELI	48.96	0.84
GUJARAT	37.56	0.65
RAJASTHAN	35.56	0.61
MP	22.42	0.39
RGPL (DABHOL)	12.20	0.21
KARNATAKA	2.47	0.04
HIMACHAL PRADESH	1.52	0.03
ESSAR STEEL	0.14	0.00
TOTAL	5808.19	100.00
Volume Purchased by top 5 Regional Entities	3470.79	59.76

Table-11: VOLUME OF ELECTRICITY SOLD THROUGH POWER EXCHANGES, JULY 2017		
Name of the Entity	Volume of Sale (MUs)	% of Volume
ARUNACHAL PRADESH	901.39	19.82
DIKCHU HEP	626.56	13.78
MP	394.34	8.67
GUJARAT	288.59	6.35
HIMACHAL PRADESH	225.30	4.95
SHREE CEMENT	196.66	4.32
J & K	177.26	3.90
WEST BENGAL	158.14	3.48
LANKO_AMK	143.72	3.16
KARCHAM WANGTOO	140.09	3.08
DELHI	124.32	2.73
MAHARASHTRA	73.97	1.63
MIZORAM	71.67	1.58
SEMBCORP	69.23	1.52
NEPAL(NVVN)	64.39	1.42
DVC	56.15	1.23
DGEN MEGA POWER	51.84	1.14
JHABUA POWER_MP	51.37	1.13
RANGIT HEP	48.79	1.07
RAJASTHAN	48.12	1.06
TEESTA HEP	45.67	1.00
MARUTI COAL	45.43	1.00
NETCL VALLUR	44.43	0.98
ILF&S	40.48	0.89
JINDAL STAGE-II	40.31	0.89
UTTAR PRADESH	38.51	0.85
ADHUNIK POWER LTD	37.54	0.83
UTTARAKHAND	36.92	0.81
MEGHALAYA	25.41	0.56
AD HYDRO	24.73	0.54
DHARIWAL POWER	22.39	0.49
KARNATAKA	20.72	0.46
NAGALAND	20.49	0.45
TAMIL NADU	19.56	0.43
LANCO BUDHIL	17.60	0.39
ANDHRA PRADESH	16.42	0.36
MANIPUR	15.13	0.33
HARYANA	14.32	0.31
BALCO	11.91	0.26
NHPC STATIONS	11.21	0.25
CHUZACHEN HEP	10.71	0.24

URI-2	9.15	0.20
CHHATTISGARH	8.16	0.18
JINDAL POWER	6.61	0.15
BIHAR	6.39	0.14
ADANI HVDC	6.36	0.14
CHANDIGARH	4.68	0.10
KORBA WEST POWER	4.65	0.10
KERALA	4.11	0.09
LOKTAK	3.92	0.09
STERLITE	3.71	0.08
TRIPURA	3.40	0.07
DADRA & NAGAR HAVELI	2.90	0.06
ODISHA	2.76	0.06
JITPL	2.59	0.06
NLC	1.70	0.04
PUNJAB	1.51	0.03
SPECTRUM	0.98	0.02
GOA	0.51	0.01
RGPPL (DABHOL)	0.44	0.01
JAYPEE NIGRIE	0.43	0.01
VANDANA VIDYUT	0.34	0.01
Total	4547.10	100.00
Volume sold by top 5 Regional Entities	2436.18	53.58

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

Name of the Entity	Volume of Purchase (MUs)	% of Volume
RAJASTHAN	307.06	10.76
MAHARASHTRA	294.18	10.31
ODISHA	276.83	9.70
ANDHRA PRADESH	272.90	9.56
KARNATAKA	255.98	8.97
GUJARAT	245.17	8.59
JHARKHAND	148.91	5.22
HARYANA	138.94	4.87
UTTAR PRADESH	137.85	4.83
KERALA	133.99	4.70
BIHAR	121.78	4.27
MANIPUR	116.75	4.09
KSK MAHANADI	72.99	2.56
UTTARAKHAND	54.52	1.91
MP	43.46	1.52
HIMACHAL PRADESH	38.41	1.35
DELHI	36.74	1.29
DAMAN AND DIU	36.67	1.28
GOA	31.83	1.12
CHHATTISGARH	24.21	0.85
PUNJAB	16.72	0.59
TAMIL NADU	11.77	0.41
MIZORAM	11.70	0.41
RGPPPL (DABHOL)	8.34	0.29
PONDICHERRY	7.06	0.25
CHANDIGARH	4.31	0.15
J & K	2.42	0.08
TRIPURA	2.19	0.08
TOTAL	2853.68	100.00
Volume purchased by top 5 Regional Entities	1406.95	49.30

Table-13: VOLUME OF ELECTRICITY UNDER DRAWAL (EXPORTED) THROUGH DSM, JULY 2017		
Name of the Entity	Volume of Under drawal (MUs)	% of Volume
JINDAL POWER	110.75	6.42
GUJARAT	106.83	6.19
TAMIL NADU	91.28	5.29
HARYANA	84.45	4.89
WEST BENGAL	80.84	4.69
NHPC STATIONS	79.60	4.61
ARUNACHAL PRADESH	78.43	4.55
MP	63.96	3.71
UTTAR PRADESH	57.61	3.34
MAHARASHTRA	57.43	3.33
PUNJAB	57.13	3.31
SEBPCORP	56.54	3.28
J & K	50.38	2.92
TRN ENERGY	48.20	2.79
RAJASTHAN	45.31	2.63
JHARKHAND	42.94	2.49
KARNATAKA	40.62	2.35
NJPC	37.76	2.19
SIKKIM	35.50	2.06
DELHI	26.28	1.52
STERLITE	26.19	1.52
ANDHRA PRADESH	24.71	1.43
AD HYDRO	24.29	1.41
ASSAM	23.63	1.37
UTTARAKHAND	23.21	1.35
CHHATTISGARH	20.58	1.19
BIHAR	20.45	1.19
RANGANADI HEP	17.86	1.04
KSK MAHANADI	17.84	1.03
MIZORAM	14.39	0.83
LANKO KONDAPALLI	13.84	0.80
KARCHAM WANGTOO	11.59	0.67
HIMACHAL PRADESH	11.16	0.65
LANKO_AMK	10.31	0.60
ODISHA	9.68	0.56
PONDICHERRY	9.67	0.56
TELANGANA	8.75	0.51
SHREE CEMENT	8.66	0.50
DCPP	8.62	0.50
DHARIWAL POWER	8.49	0.49
TEESTA HEP	7.75	0.45
MARUTI COAL	7.62	0.44
JORETHANG	7.47	0.43
ADHUNIK POWER LTD	6.74	0.39
DADRA & NAGAR HAVELI	6.71	0.39
DIKCHU HEP	6.26	0.36
DAGACHU	6.10	0.35
DVC	5.94	0.34

MANIPUR	5.43	0.31
GOA	5.42	0.31
MEGHALAYA	4.83	0.28
ILF&S	4.83	0.28
ACBIL	4.48	0.26
NSPCL	4.40	0.25
JITPL	4.24	0.25
DGEN MEGA POWER	4.04	0.23
BALCO	4.02	0.23
RGPPL (DABHOL)	3.85	0.22
NEPAL(NVVN)	3.72	0.22
TRIPURA	3.64	0.21
CGPL	3.62	0.21
CHANDIGARH	3.56	0.21
ESSAR POWER	3.31	0.19
DOYANG HEP	3.31	0.19
RKM POWER	3.15	0.18
CHUZACHEN HEP	3.13	0.18
EMCO	3.10	0.18
DB POWER	2.85	0.17
KORBA WEST POWER	2.85	0.17
JINDAL STAGE-II	2.25	0.13
BANGLADESH	2.22	0.13
LANCO BUDHIL	2.04	0.12
NAGALAND	1.95	0.11
NETCL VALLUR	1.92	0.11
KERALA	1.88	0.11
GMR KAMALANGA	1.86	0.11
VANDANA VIDYUT	1.79	0.10
RANGIT HEP	1.40	0.08
TEESTA STG3	1.35	0.08
NLC	1.15	0.07
THERMAL POWERTECH	1.04	0.06
DAMAN AND DIU	0.97	0.06
JAYPEE NIGRIE	0.59	0.03
ONGC PALATANA	0.28	0.02
ADANI HVDC	0.20	0.01
URI-2	0.18	0.01
Total	1725.21	100.00
Volume Exported by top 5 Regional Entities	474.15	27.48

Table-14: VOLUME OF ELECTRICITY OVER DRAWAL (IMPORTED) THROUGH DSM, JULY 2017		
Name of the Entity	Volume of Over drawal (MUs)	% of Volume
UTTAR PRADESH	149.09	6.81
WEST BENGAL	125.95	5.76
ARUNACHAL PRADESH	124.51	5.69
ANDHRA PRADESH	102.92	4.70
MAHARASHTRA	98.30	4.49
ODISHA	89.51	4.09
RAJASTHAN	87.01	3.98
TAMIL NADU	83.72	3.83
STERLITE	82.93	3.79
NHPC STATIONS	82.47	3.77
JINDAL POWER	81.71	3.73
PUNJAB	78.18	3.57
KARNATAKA	61.27	2.80
LANCO KONDAPALLI	57.93	2.65
MP	56.96	2.60
KERALA	54.86	2.51
MANIPUR	54.36	2.48
JHARKHAND	51.81	2.37
GUJARAT	44.81	2.05
BIHAR	43.11	1.97
HARYANA	40.49	1.85
HIMACHAL PRADESH	39.74	1.82
CHHATTISGARH	36.92	1.69
UTTARAKHAND	36.55	1.67
KSK MAHANADI	31.21	1.43
DELHI	30.62	1.40
DCPP	30.03	1.37
RGPPL (DABHOL)	21.72	0.99
J & K	20.13	0.92
SIKKIM	20.01	0.91
ILF&S	16.36	0.75
DAMAN AND DIU	15.89	0.73
NETCL VALLUR	13.38	0.61
EMCO	12.16	0.56
SEMBCORP	11.89	0.54
JORETHANG	10.43	0.48
CHANDIGARH	10.01	0.46
ACBIL	9.40	0.43
SHREE CEMENT	9.13	0.42
JITPL	8.62	0.39
VANDANA VIDYUT	8.40	0.38
GOA	8.06	0.37
BANGLADESH	7.01	0.32
BALCO	6.81	0.31
LANCO BUDHIL	6.68	0.31
DADRA & NAGAR HAVELI	6.66	0.30
TRIPURA	6.24	0.29
NLC	5.73	0.26
MARUTI COAL	5.71	0.26

DGEN MEGA POWER	5.70	0.26
NAGALAND	5.09	0.23
MEGHALAYA	4.72	0.22
LANKO_AMK	4.50	0.21
NJPC	4.33	0.20
ADHUNIK POWER LTD	4.23	0.19
DB POWER	3.87	0.18
NEPAL(NVVN)	3.82	0.17
MIZORAM	3.62	0.17
TRN ENERGY	3.59	0.16
DVC	3.37	0.15
PONDICHERRY	3.36	0.15
DHARIWAL POWER	3.26	0.15
AD HYDRO	2.82	0.13
KARCHAM WANGTOO	2.75	0.13
JINDAL STAGE-II	2.73	0.12
THERMAL POWERTECH	2.37	0.11
KORBA WEST POWER	2.12	0.10
ASSAM	2.09	0.10
TEESTA HEP	1.81	0.08
SASAN UMPP	1.74	0.08
RKM POWER	1.62	0.07
CHUZACHEN HEP	1.61	0.07
NSPCL	1.59	0.07
DIKCHU HEP	1.43	0.07
TEESTA STG3	1.39	0.06
MEENAKSHI	1.36	0.06
CGPL	0.96	0.04
TELANGANA	0.96	0.04
DOYANG HEP	0.96	0.04
GMR CHATTISGARH	0.95	0.04
RANGANADI HEP	0.86	0.04
RANGIT HEP	0.81	0.04
SIMHAPURI	0.75	0.03
COASTGEN	0.66	0.03
MB POWER	0.62	0.03
ESSAR POWER	0.55	0.03
URI-2	0.47	0.02
JAYPEE NIGRIE	0.38	0.02
GMR KAMALANGA	0.34	0.02
ADANI HVDC	0.24	0.01
DAGACHU	0.08	0.00
ONGC PALATANA	0.07	0.00
TOTAL	2187.97	100.00
Volume Imported by top 5 Regional Entities	600.77	27.46

Table-15: TOTAL VOLUME OF NET SHORT-TERM TRANSACTIONS OF ELECTRICITY (REGIONAL ENTITY-WISE), JULY 2017		
Sr.No.	Name of the Entity	Total volume of net short-term transactions of electricity*
1	PUNJAB	1468.66
2	HARYANA	699.73
3	UTTAR PRADESH	581.78
4	DELHI	574.10
5	JHARKHAND	523.93
6	MAHARASHTRA	520.63
7	ANDHRA PRADESH	325.28
8	KSK MAHANADI	315.44
9	TAMIL NADU	289.95
10	KARNATAKA	246.65
11	KERALA	238.13
12	ODISHA	235.77
13	BIHAR	204.67
14	MANIPUR	196.16
15	TEESTA STG3	180.72
16	CHHATTISGARH	178.75
17	RAJASTHAN	141.88
18	SIKKIM	100.77
19	BANGLADESH	80.16
20	STERLITE	51.97
21	DAMAN AND DIU	51.59
22	DADRA & NAGAR HAVELI	46.01
23	LANKO KONDAPALLI	44.09
24	GOA	29.66
25	RGPL (DABHOL)	23.89
26	DCPP	21.40
27	EMCO	9.07
28	VANDANA VIDYUT	6.27
29	CHANDIGARH	6.07
30	ACBIL	4.93
31	NLC	2.88
32	SASAN UMPP	1.74
33	MEENAKSHI	1.36
34	GMR CHATTISGARH	0.95
35	SIMHAPURI	0.75
36	PONDICHERRY	0.75
37	COASTGEN	0.66
38	MB POWER	0.62
39	ESSAR STEEL	0.14
40	ONGC PALATANA	-0.21
41	THERMAL POWERTECH	-0.27
42	JAYPEE NIGRIE	-0.63
43	TRIPURA	-0.82
44	GMR KAMALANGA	-1.51
45	RKM POWER	-1.53
46	DOYANG HEP	-2.35
47	CGPL	-2.66
48	ESSAR POWER	-2.76
49	DAGACHU	-6.02
50	ADANI HVDC	-6.32
51	TELANGANA	-7.79

52	NHPC STATIONS	-8.34
53	SPECTRUM	-8.53
54	URI-2	-8.87
55	NSPCL	-12.71
56	DB POWER	-14.26
57	RANGANADI HEP	-17.00
58	NAGALAND	-17.35
59	ASSAM	-21.55
60	NJPC	-33.43
61	JINDAL POWER	-35.65
62	ADHUNIK POWER LTD	-40.06
63	MEGHALAYA	-42.21
64	TRN ENERGY	-44.61
65	AD HYDRO	-46.20
66	BALCO	-48.52
67	LANCO BUDHIL	-51.26
68	LOKTAK	-52.28
69	JHABUA POWER_MP	-54.43
70	DVC	-58.72
71	NEPAL(NVVN)	-67.20
72	RANGIT HEP	-71.00
73	JORETHANG	-72.25
74	ILF&S	-85.84
75	SEMBCORP	-113.88
76	JITPL	-121.93
77	TEESTA HEP	-137.73
78	MIZORAM	-142.23
79	CHUZACHEN HEP	-146.36
80	KARCHAM WANGTOO	-157.21
81	DGEN MEGA POWER	-161.56
82	UTTARAKHAND	-174.80
83	MARUTI COAL	-176.05
84	KORBA WEST POWER	-191.56
85	GUJARAT	-254.22
86	DHARIWAL POWER	-256.27
87	JINDAL STAGE-II	-285.86
88	LANKO_AMK	-306.82
89	SHREE CEMENT	-378.88
90	NETCL VALLUR	-479.35
91	WEST BENGAL	-617.90
92	DIKCHU HEP	-637.32
93	MP	-637.39
94	J & K	-786.17
95	ARUNACHAL PRADESH	-1056.74
96	HIMACHAL PRADESH	-1150.85

** 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 2017			
	Details of Congestion	IEX	PXIL
A	Unconstrained Cleared Volume* (MUs)	3720.03	5.16
B	Actual Cleared Volume and hence scheduled (MUs)	3668.77	5.16
C	Volume of electricity that could not be cleared and hence not scheduled because of congestion (MUs) (A-B)	42.35	0.00
D	Volume of electricity that could not be cleared as % to Unconstrained Cleared Volume	1.14%	0.00%
E	Percentage of the time congestion occurred during the month (Number of hours congestion occurred/Total number of hours in the month)	23.66%	0.00%
F	Congestion occurrence (%) time block wise		
	0.00 - 6.00 hours	28.27%	0.00%
	6.00 - 12.00 hours	27.56%	0.00%
	12.00 - 18.00 hours	19.18%	0.00%
	18.00 - 24.00 hours	25.00%	0.00%
* This power would have been scheduled had there been no congestion.			
Source: IEX & PXIL & NLDC			

Table-17: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY IN INDIA (DAY-WISE) (MUs), JULY 2017						
Date	Bilateral		Power Exchange (Area Clearing Volume# of Day Ahead Market)		Deviation Settlement (Over Drawl+Under Generation)	Total Electricity Generation (MU) as given at CEA Website*
	Through Traders and PXs**	Direct	IEX	PXIL		
1-Jul-17	126.85	54.68	96.12	0.16	59.80	2899.65
2-Jul-17	117.01	56.04	78.68	0.04	66.55	2793.65
3-Jul-17	122.57	57.94	91.22	0.16	66.41	2947.51
4-Jul-17	127.26	55.96	90.49	0.16	61.20	2992.14
5-Jul-17	124.51	57.30	109.26	0.13	61.22	3037.94
6-Jul-17	147.91	57.27	108.30	0.16	70.26	3085.96
7-Jul-17	138.99	52.42	112.99	0.20	58.63	3224.59
8-Jul-17	134.53	56.00	117.91	0.16	60.81	3342.03
9-Jul-17	137.66	54.60	97.02	0.04	56.60	3286.55
10-Jul-17	140.43	52.64	109.18	0.04	58.60	3305.12
11-Jul-17	139.63	54.27	115.13	0.15	64.91	3208.64
12-Jul-17	139.68	52.29	118.11	0.21	59.94	3170.53
13-Jul-17	140.51	53.06	119.13	0.21	58.32	3147.74
14-Jul-17	140.34	55.62	108.81	0.21	61.25	3161.08
15-Jul-17	143.49	52.50	120.22	0.21	60.42	3178.58
16-Jul-17	140.22	50.02	101.47	0.04	61.95	3121.97
17-Jul-17	142.06	50.69	127.80	0.21	59.83	3203.62
18-Jul-17	131.15	48.78	135.35	0.21	69.50	3233.23
19-Jul-17	125.93	46.00	125.12	0.21	64.24	3246.91
20-Jul-17	133.43	42.59	125.23	0.04	66.43	3210.46
21-Jul-17	133.83	43.22	113.99	0.21	56.94	3242.42
22-Jul-17	120.90	49.72	112.53	0.21	61.40	3164.62
23-Jul-17	119.02	50.62	103.82	0.04	65.68	2981.84
24-Jul-17	127.37	47.51	117.37	0.04	66.99	3016.80
25-Jul-17	104.00	41.58	132.54	0.21	71.59	3099.51
26-Jul-17	113.34	48.82	138.65	0.21	66.91	3191.08
27-Jul-17	120.09	46.70	133.28	0.21	68.36	3234.37
28-Jul-17	126.31	42.57	135.79	0.99	71.98	3264.32
29-Jul-17	122.55	46.60	163.73	0.04	63.86	3338.55
30-Jul-17	116.23	52.72	152.46	0.04	63.31	3246.09
31-Jul-17	125.73	54.52	165.99	0.04	66.11	3334.22
Total	4023.51	1585.25	3668.77	5.16	1969.99	97911.72
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, 2017									
Market Segment	Day ahead market of IEX			Day ahead market of PXIL			Under Drawl/Over Drawl from the Grid (DSM)		
Date	Minimum ACP	Maximum ACP	Weighted Average Price*	Minimum ACP	Maximum ACP	Weighted Average Price*	All India Grid		
							Minimum Price	Maximum Price	Average Price**
1-Jul-17	0.80	4.47	2.24	1.80	3.50	3.27	0.00	3.45	1.90
2-Jul-17	0.50	3.41	1.28	2.50	2.50	2.50	0.00	3.24	1.23
3-Jul-17	0.50	3.41	1.50	2.11	3.28	3.11	0.00	5.32	2.03
4-Jul-17	0.50	3.48	1.66	2.11	3.25	3.08	0.00	5.11	1.74
5-Jul-17	1.00	3.25	2.19	3.12	3.12	3.12	0.00	3.45	1.77
6-Jul-17	1.51	4.40	2.59	2.11	3.04	2.92	0.00	3.45	1.43
7-Jul-17	1.10	4.72	2.72	2.11	4.06	3.53	0.00	3.45	2.05
8-Jul-17	2.25	5.20	2.97	2.11	4.10	3.77	0.00	6.16	2.51
9-Jul-17	1.00	4.50	2.67	2.38	5.20	2.95	0.00	3.45	1.73
10-Jul-17	1.55	5.30	2.81	2.45	4.10	2.94	0.00	3.45	1.86
11-Jul-17	1.70	4.52	2.68	4.56	4.57	4.57	0.00	3.24	1.43
12-Jul-17	1.14	4.00	2.49	2.06	3.99	3.78	0.00	5.32	1.86
13-Jul-17	1.67	4.15	2.54	2.15	3.99	3.35	0.00	3.45	1.85
14-Jul-17	1.00	5.00	2.53	2.39	3.84	3.49	0.00	3.45	1.65
15-Jul-17	1.75	4.52	2.47	2.19	4.29	3.79	0.00	3.45	1.99
16-Jul-17	0.70	4.47	2.32	2.19	3.80	2.50	0.00	3.24	1.79
17-Jul-17	1.85	5.01	2.60	2.39	4.29	3.83	0.00	3.45	1.92
18-Jul-17	1.75	5.00	2.84	2.21	4.50	3.98	0.00	5.32	2.03
19-Jul-17	1.90	4.98	2.81	2.41	4.61	4.32	0.00	6.36	1.66
20-Jul-17	2.31	6.01	3.04	2.41	4.26	2.85	0.00	3.24	1.49
21-Jul-17	0.93	6.01	2.92	2.41	4.64	4.35	0.00	3.45	1.81
22-Jul-17	1.00	6.00	2.94	1.31	4.61	4.23	0.00	3.45	1.65
23-Jul-17	0.70	4.61	2.37	2.17	4.66	2.80	0.00	5.11	1.20
24-Jul-17	1.00	5.03	2.62	1.40	3.81	2.27	0.00	3.45	1.40
25-Jul-17	1.75	6.00	2.62	1.71	4.25	3.89	0.00	4.91	1.66
26-Jul-17	1.00	6.01	2.83	1.71	4.40	3.98	0.00	5.74	1.98
27-Jul-17	1.08	6.01	2.85	2.10	4.38	3.97	0.00	6.16	2.35
28-Jul-17	1.80	5.62	3.05	1.05	3.50	2.92	0.00	5.32	1.88
29-Jul-17	2.23	6.01	3.24	2.95	2.95	2.95	0.00	5.95	2.45
30-Jul-17	0.60	5.00	2.79	2.95	2.95	2.95	0.00	3.45	1.73
31-Jul-17	2.01	6.03	3.24	2.75	2.75	2.75	0.00	5.11	1.61
	0.50#	6.03#	2.65	1.05#	5.20#	3.52	0.00#	6.36#	1.79
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 2017										
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	1432.40	1432.40	1.51	16.72	15.22	78.18	57.13	21.05	1468.66
HARYANA	1.25	620.31	619.06	14.32	138.94	124.62	40.49	84.45	-43.95	699.73
RAJASTHAN	194.33	35.56	-158.77	48.12	307.06	258.94	87.01	45.31	41.71	141.88
DELHI	3.65	660.98	657.33	124.32	36.74	-87.58	30.62	26.28	4.34	574.10
UP	0.00	390.95	390.95	38.51	137.85	99.34	149.09	57.61	91.48	581.78
UTTARAKHAND	271.89	66.15	-205.74	36.92	54.52	17.60	36.55	23.21	13.34	-174.80
HP	994.06	1.52	-992.54	225.30	38.41	-186.89	39.74	11.16	28.58	-1150.85
J & K	581.08	0.00	-581.08	177.26	2.42	-174.84	20.13	50.38	-30.25	-786.17
CHANDIGARH	0.00	0.00	0.00	4.68	4.31	-0.38	10.01	3.56	6.45	6.07
MP	301.94	22.42	-279.52	394.34	43.46	-350.88	56.96	63.96	-6.99	-637.39
MAHARASHTRA	75.18	334.73	259.55	73.97	294.18	220.22	98.30	57.43	40.87	520.63
GUJARAT	186.34	37.56	-148.78	288.59	245.17	-43.42	44.81	106.83	-62.02	-254.22
CHHATTISGARH	0.00	146.36	146.36	8.16	24.21	16.05	36.92	20.58	16.34	178.75
GOA	4.29	0.00	-4.29	0.51	31.83	31.32	8.06	5.42	2.64	29.66
DAMAN & DIU	0.00	0.00	0.00	0.00	36.67	36.67	15.89	0.97	14.92	51.59
D&N HAVELI	0.00	48.96	48.96	2.90	0.00	-2.90	6.66	6.71	-0.06	46.01
ANDHRA P.	209.09	199.68	-9.41	16.42	272.90	256.48	102.92	24.71	78.21	325.28
KARNATAKA	11.73	2.47	-9.26	20.72	255.98	235.26	61.27	40.62	20.65	246.65
KERALA	6.00	61.27	55.27	4.11	133.99	129.88	54.86	1.88	52.98	238.13
TAMIL NADU	5.08	310.37	305.29	19.56	11.77	-7.79	83.72	91.28	-7.55	289.95
PONDICHERRY	0.00	0.00	0.00	0.00	7.06	7.06	3.36	9.67	-6.31	0.75
TELANGANA	0.00	0.00	0.00	0.00	0.00	0.00	0.96	8.75	-7.79	-7.79
WEST BENGAL	504.87	0.00	-504.87	158.14	0.00	-158.14	125.95	80.84	45.11	-617.90
ODISHA	188.95	70.82	-118.13	2.76	276.83	274.06	89.51	9.68	79.84	235.77
BIHAR	0.00	66.62	66.62	6.39	121.78	115.39	43.11	20.45	22.66	204.67
JHARKHAND	0.00	366.15	366.15	0.00	148.91	148.91	51.81	42.94	8.87	523.93
SIKKIM	0.00	116.26	116.26	0.00	0.00	0.00	20.01	35.50	-15.49	100.77
DVC	0.00	0.00	0.00	56.15	0.00	-56.15	3.37	5.94	-2.57	-58.72
AR.PRADESH	457.48	256.05	-201.43	901.39	0.00	-901.39	124.51	78.43	46.07	-1056.74
ASSAM	0.00	0.00	0.00	0.00	0.00	0.00	2.09	23.63	-21.55	-21.55
MANIPUR	17.48	63.09	45.61	15.13	116.75	101.62	54.36	5.43	48.93	196.16
MEGHALAYA	16.69	0.00	-16.69	25.41	0.00	-25.41	4.72	4.83	-0.11	-42.21
MIZORAM	71.49	0.00	-71.49	71.67	11.70	-59.97	3.62	14.39	-10.76	-142.23
NAGALAND	0.00	0.00	0.00	20.49	0.00	-20.49	5.09	1.95	3.14	-17.35
TRIPURA	2.21	0.00	-2.21	3.40	2.19	-1.21	6.24	3.64	2.60	-0.82
NTPC -NR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NHPC STN.	0.00	0.00	0.00	11.21	0.00	-11.21	82.47	79.60	2.87	-8.34
NJPC	0.00	0.00	0.00	0.00	0.00	0.00	4.33	37.76	-33.43	-33.43
AD HYDRO	0.00	0.00	0.00	24.73	0.00	-24.73	2.82	24.29	-21.47	-46.20
KARCHAM WAPDA	8.28	0.00	-8.28	140.09	0.00	-140.09	2.75	11.59	-8.84	-157.21
SHREE CEMENT	182.69	0.00	-182.69	196.66	0.00	-196.66	9.13	8.66	0.47	-378.88
LANCO BUDHIL	38.30	0.00	-38.30	17.60	0.00	-17.60	6.68	2.04	4.64	-51.26
MALANA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NTPC -WR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JINDAL POWER	0.00	0.00	0.00	6.61	0.00	-6.61	81.71	110.75	-29.04	-35.65
LANCO_AMK	157.30	0.00	-157.30	143.72	0.00	-143.72	4.50	10.31	-5.80	-306.82
NSPCL	9.90	0.00	-9.90	0.00	0.00	0.00	1.59	4.40	-2.81	-12.71
ACBIL	0.00	0.00	0.00	0.00	0.00	0.00	9.40	4.48	4.93	4.93
BALCO	39.41	0.00	-39.41	11.91	0.00	-11.91	6.81	4.02	2.79	-48.52
RGPL	14.07	12.20	-1.87	0.44	8.34	7.89	21.72	3.85	17.87	23.89
CGPL	0.00	0.00	0.00	0.00	0.00	0.00	0.96	3.62	-2.66	-2.66

DCPP	0.00	0.00	0.00	0.00	0.00	0.00	30.03	8.62	21.40	21.40
EMCO	0.00	0.00	0.00	0.00	0.00	0.00	12.16	3.10	9.07	9.07
KSK MAHANAD	0.00	229.09	229.09	0.00	72.99	72.99	31.21	17.84	13.36	315.44
ESSAR POWER	0.00	0.00	0.00	0.00	0.00	0.00	0.55	3.31	-2.76	-2.76
JINDAL STG-II	246.02	0.00	-246.02	40.31	0.00	-40.31	2.73	2.25	0.47	-285.86
DB POWER	15.28	0.00	-15.28	0.00	0.00	0.00	3.87	2.85	1.01	-14.26
DHARIWAL PO	228.64	0.00	-228.64	22.39	0.00	-22.39	3.26	8.49	-5.23	-256.27
JAYPEE NIGRIE	0.00	0.00	0.00	0.43	0.00	-0.43	0.38	0.59	-0.20	-0.63
DGEN MEGA P	111.39	0.00	-111.39	51.84	0.00	-51.84	5.70	4.04	1.66	-161.56
GMR CHATTIS	0.00	0.00	0.00	0.00	0.00	0.00	0.95	0.00	0.95	0.95
KORBA WEST	186.18	0.00	-186.18	4.65	0.00	-4.65	2.12	2.85	-0.73	-191.56
MARUTI COAL	128.71	0.00	-128.71	45.43	0.00	-45.43	5.71	7.62	-1.91	-176.05
SPECTRUM	7.55	0.00	-7.55	0.98	0.00	-0.98	0.00	0.00	0.00	-8.53
JHABUA POWE	3.06	0.00	-3.06	51.37	0.00	-51.37	0.00	0.00	0.00	-54.43
SASAN UMPP	0.00	0.00	0.00	0.00	0.00	0.00	1.74	0.00	1.74	1.74
TRN ENERGY	0.00	0.00	0.00	0.00	0.00	0.00	3.59	48.20	-44.61	-44.61
RKM POWER	0.00	0.00	0.00	0.00	0.00	0.00	1.62	3.15	-1.53	-1.53
LANKO KOND	0.00	0.00	0.00	0.00	0.00	0.00	57.93	13.84	44.09	44.09
SIMHAPURI	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.00	0.75	0.75
MEENAKSHI	0.00	0.00	0.00	0.00	0.00	0.00	1.36	0.00	1.36	1.36
COASTGEN	0.00	0.00	0.00	0.00	0.00	0.00	0.66	0.00	0.66	0.66
THERMAL POW	1.60	0.00	-1.60	0.00	0.00	0.00	2.37	1.04	1.33	-0.27
ILF&S	56.89	0.00	-56.89	40.48	0.00	-40.48	16.36	4.83	11.53	-85.84
NLC	0.00	0.00	0.00	1.70	0.00	-1.70	5.73	1.15	4.58	2.88
SEBNCORP	0.00	0.00	0.00	69.23	0.00	-69.23	11.89	56.54	-44.65	-113.88
NETCL VALLUR	446.38	0.00	-446.38	44.43	0.00	-44.43	13.38	1.92	11.46	-479.35
STERLITE	1.06	0.00	-1.06	3.71	0.00	-3.71	82.93	26.19	56.74	51.97
ADHUNIK POW	0.00	0.00	0.00	37.54	0.00	-37.54	4.23	6.74	-2.51	-40.06
CHUZACHEN HE	134.13	0.00	-134.13	10.71	0.00	-10.71	1.61	3.13	-1.52	-146.36
RANGIT HEP	21.61	0.00	-21.61	48.79	0.00	-48.79	0.81	1.40	-0.59	-71.00
GMR KAMALANG	0.00	0.00	0.00	0.00	0.00	0.00	0.34	1.86	-1.51	-1.51
JITPL	123.72	0.00	-123.72	2.59	0.00	-2.59	8.62	4.24	4.37	-121.93
TEESTA HEP	86.12	0.00	-86.12	45.67	0.00	-45.67	1.81	7.75	-5.94	-137.73
DAGACHU	0.00	0.00	0.00	0.00	0.00	0.00	0.08	6.10	-6.02	-6.02
JORETHANG	75.21	0.00	-75.21	0.00	0.00	0.00	10.43	7.47	2.96	-72.25
NEPAL(NVVN)	2.91	0.00	-2.91	64.39	0.00	-64.39	3.82	3.72	0.10	-67.20
BANGLADESH	0.00	75.37	75.37	0.00	0.00	0.00	7.01	2.22	4.79	80.16
TEESTA STG3	0.00	180.68	180.68	0.00	0.00	0.00	1.39	1.35	0.04	180.72
DIKCHU HEP	5.93	0.00	-5.93	626.56	0.00	-626.56	1.43	6.26	-4.84	-637.32
RANGANADI HEF	0.00	0.00	0.00	0.00	0.00	0.00	0.86	17.86	-17.00	-17.00
LOKTAK	48.36	0.00	-48.36	3.92	0.00	-3.92	0.00	0.00	0.00	-52.28
TOTAL	6485.77	5808.05	-677.72	4531.25	2853.68	-1677.57	2177.21	1719.46	457.76	-1897.54

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 August, 2017

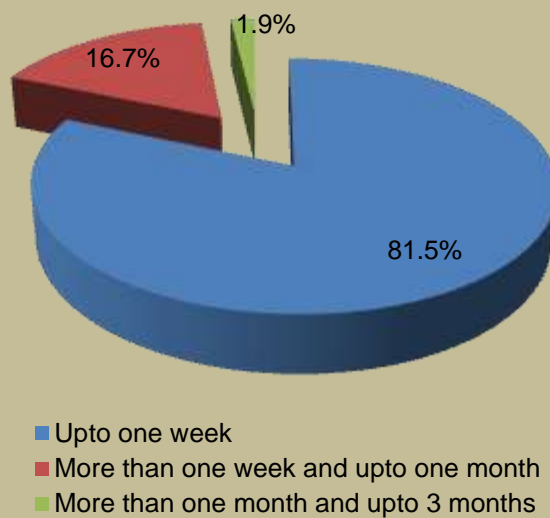


Figure-8: Forward Curve based on Prices of Bilateral Contracts

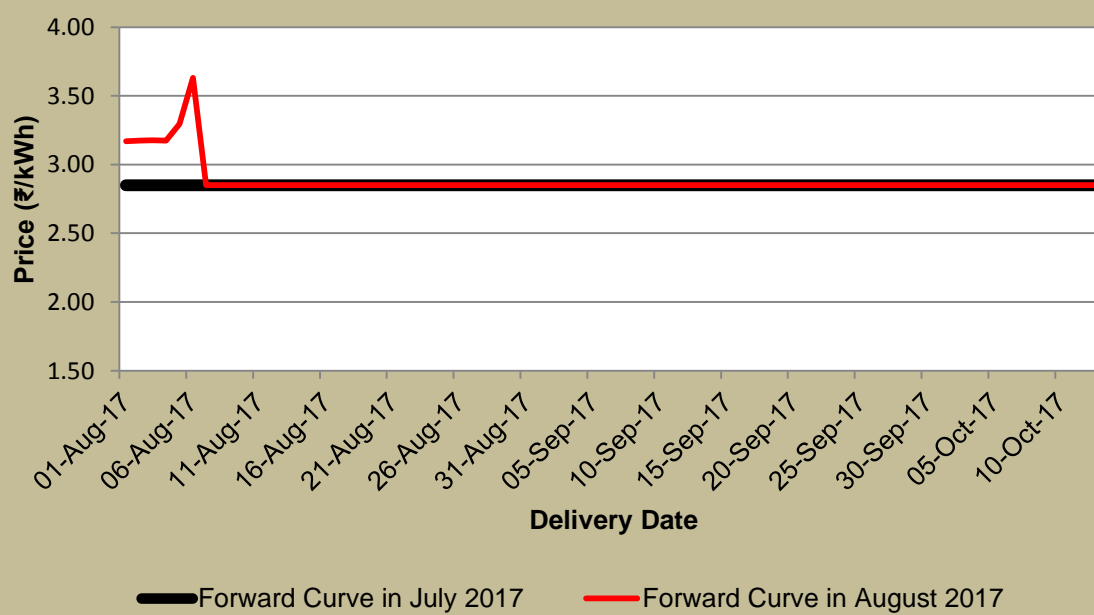


Table-20 : VOLUME AND PRICE OF RENEWABLE ENERGY CERTIFICATES (RECs) TRANSACTIONED THROUGH POWER EXCHANGES, JULY 2017			
Sr.No.	Details of REC Transactions	IEX	PXIL
		Non-Solar	Non Solar
A	Volume of Buy Bid	378417	116878
B	Volume of Sell Bid	8774309	3318968
C	Ratio of Buy Bid to Sell Bid Volume	0.043	0.035
D	Market Clearing Volume (MWh)	378417	116878
E	Market Clearing Price (₹/MWh)	1500	1500

Source: IEX and PXIL

Note 1: 1 REC = 1 MWh

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