

Monthly Report on Short-term Transactions of Electricity in India

September, 2017



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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	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 October 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 **September, 2017** are as under:

I: Volume of Short-term Transactions of Electricity

During September 2017, total electricity generation excluding generation from renewable and captive power plants in India was 102514.94 MUs (Table-1).

Of the total electricity generation, 10923.78 MUs (10.66%) was transacted through short-term, comprising of 4748.04 MUs (4.63%) through bilateral (through traders and term-ahead contracts on power exchanges and directly between distribution companies), followed by 4366.54 MUs (4.26%) through day ahead collective transactions on power exchanges (IEX and PXIL) and 1809.20 MUs (1.76%) through DSM (Table-1 & Figure-2).

Of the total short-term transactions, bilateral constitutes 43.47% (33.71% through traders and term-ahead contracts on power exchanges and 9.76% directly between distribution companies) followed by 39.97% through day ahead collective transactions on power exchanges and 16.56% 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 September, 2017. In September, 2017, 23 trading licensees were engaged in short term trading. Top 5 trading licensees had a share of 73.14% in the total volume traded by all the licensees. These are PTC India Ltd., NTPC Vidyut Vyapar Nigam Ltd., Manikaran Power Ltd., Mittal Processor (P) 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 0.1732 for the month of September, 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 4086.60 MUs and 279.94 MUs respectively. The volume of total buy bids and sell bids was 5737.81 MUs and 5101.20 MUs respectively in IEX while the same was 281.21 MUs and 279.95 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 152.57 MUs and 101.55 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 ₹2.40/kWh, ₹6.40/kWh and ₹3.57/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 ₹3.70/kWh, ₹3.97/kWh, and ₹3.14/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 ₹1.20/kWh, ₹9.91/kWh and ₹4.25/kWh respectively in IEX and ₹1.84/kWh, ₹7.01/kWh and ₹4.01/kWh respectively in PXIL (Table-5).

The price of electricity transacted through IEX and PXIL in the term-ahead market was ₹4.49/kWh and ₹4.54/kWh respectively (Table-6 and Table-7).

(iii) Price of electricity transacted through DSM: The average deviation settlement price was ₹2.20/kWh. The minimum and maximum deviation settlement prices were ₹0.00/kWh and ₹8.24/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 47.61% of the volume, and these were Sembcorp Gayatri Power Ltd., Himachal Pradesh, Madhya Pradesh, Jammu & Kashmir and Jaypee Nigrie Super Thermal Power Project. Top 5 regional entities purchased 53.59% of the volume, and these were Punjab, Uttar Pradesh, Haryana, Tamil Nadu and Delhi (Table-9 & 10).

Of the total power exchange transactions, top 5 regional entities sold 37.96% of the volume, and these were TEESTA STG3 Hydro Power Project, Gujarat, Infrastructure Leasing & Financial Services Limited, Karnataka and Himachal Pradesh. Top 5 regional entities purchased 57.67% of the volume, and these were Bihar, West Bengal, Uttar Pradesh, Telangana and Gujarat (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 25.08% of the volume, and these were National Thermal Power Corporation Ltd. Stations (Western region), Telangana, National Thermal Power Corporation Ltd. Stations (Northern region), Karnataka and Tamil Nadu (Table-13). Top 5 regional entities overdrew 26.21% of the volume, and these were Uttar Pradesh, Odisha, Jammu & Kashmir, Rajasthan and Haryana (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 Sembcorp Gayatri Power Ltd., Himachal Pradesh, TEESTA STG3 Hydro Power Project, Madhya Pradesh and Jindal Power Ltd. Top 5 electricity purchasing regional entities were Uttar Pradesh, Bihar, Tamil Nadu, Telangana and Punjab.

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.

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.

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

During the month, the volume of electricity that could not be cleared in IEX was 0.002% of the unconstrained cleared volume. In terms of time, congestion occurred was 0.38% in IEX. No congestion was witnessed in PXIL (Table-16).

V: Bilateral Contracts executed by Traders

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

(i) Duration of bilateral contracts: During October, 2017, a total of 111 bilateral contracts (excluding banking/swap contracts) have been executed by traders for the volume of 463.34 MUs. Figure-7 shows the percentage of contracts categorized according to the period of power supply. It can be observed from the figure that 86.5% of the bilateral contracts were executed for duration of up to one week, 11.7% of the contracts were executed for duration of more than a week and up to one month, 1.8% 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, 32 banking/swapping bilateral contracts were also executed for the volume of 1683.04 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 October, 2017 to 30th December, 2017 based on the bilateral contracts⁴ executed till October, 2017. Forward curves have been drawn for the contracts executed in September, 2017 and October, 2017 for the purpose of comparison. It is observed that forward contract prices are significantly higher (for the period from 3rd October to 1st November 2017) for the contracts executed in October, 2017 compared to the contracts executed in September, 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 was held on power exchanges in September, 2011.

Trading in Renewable Energy Certificates (RECs) which was stayed by the Supreme Court in May 2017 has been allowed since 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 September, 2017 are shown in Table-20. Market clearing volume of non-solar RECs transacted on IEX and PXIL were 292482 and 89525 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 0.036 and 0.024 for IEX and PXIL respectively.

⁴Excluding Banking/Swapping contracts

VII: Inferences:

- The percentage of short-term transactions of electricity to total electricity generation was 10.66%.
- Of the total short-term transactions of electricity, 43.47% was transacted through bilateral (through traders and term ahead contracts on power exchanges and directly by distribution companies), followed by 39.97% through power exchanges and 16.56% through DSM.
- Top 5 trading licensees had a share of 73.14% 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 0.1732, indicating moderate concentration of market power.
- The weighted average price of electricity transacted through trading licensees was ₹3.57/kWh. The weighted average prices of electricity transacted through IEX and PXIL were ₹4.25/kWh and ₹4.01/kWh respectively.
- The average price of electricity transacted through DSM was ₹2.20/kWh.
- Top 5 electricity selling regional entities were Sembcorp Gayatri Power Ltd., Himachal Pradesh, TEESTA STG3 Hydro Power Project, Madhya Pradesh and Jindal Power Ltd. Top 5 electricity purchasing regional entities were Uttar Pradesh, Bihar, Tamil Nadu, Telangana and Punjab.
- The volume of electricity that could not be cleared in IEX was 0.002% of the unconstrained cleared volume. In terms of time, congestion occurred was 0.38% in IEX. No congestion was witnessed in PXIL.
- In October, 2017, 86.5% of the bilateral contracts were executed for duration of up to one week, 11.7% of the contracts were executed for duration of more than a week and up to one month, 1.8% 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.

- The forward curve of electricity sale prices for the period from 1st October, 2017 to 30th December, 2017 based on the bilateral contracts⁵ executed till October, 2017 shows that forward contract prices are significantly higher (for the period from 3rd October to 1st November 2017) for the contracts executed in October, 2017 compared to the contracts executed in September, 2017, after which, the prices of both the contracts have been moving together.
- Market clearing volume of non-solar RECs transacted on IEX and PXIL were 292482 and 89525 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), SEPTEMBER 2017				
Sr.No	Short-term transactions	Volume (MUs)	% to Volume of short-term transactions	% to Total Generation
1	Bilateral	4748.04	43.47	4.63
	(i) Through Traders and PXs	3682.30	33.71	3.59
	(ii) Direct	1065.73	9.76	1.04
2	Through Power Exchanges	4366.54	39.97	4.26
	(i) IEX	4086.60	37.41	3.99
	(ii) PXIL	279.94	2.56	0.273
3	Through DSM	1809.20	16.56	1.76
	Total	10923.78	-	10.66
	Total Generation	102514.94	-	-

Source: NLDC

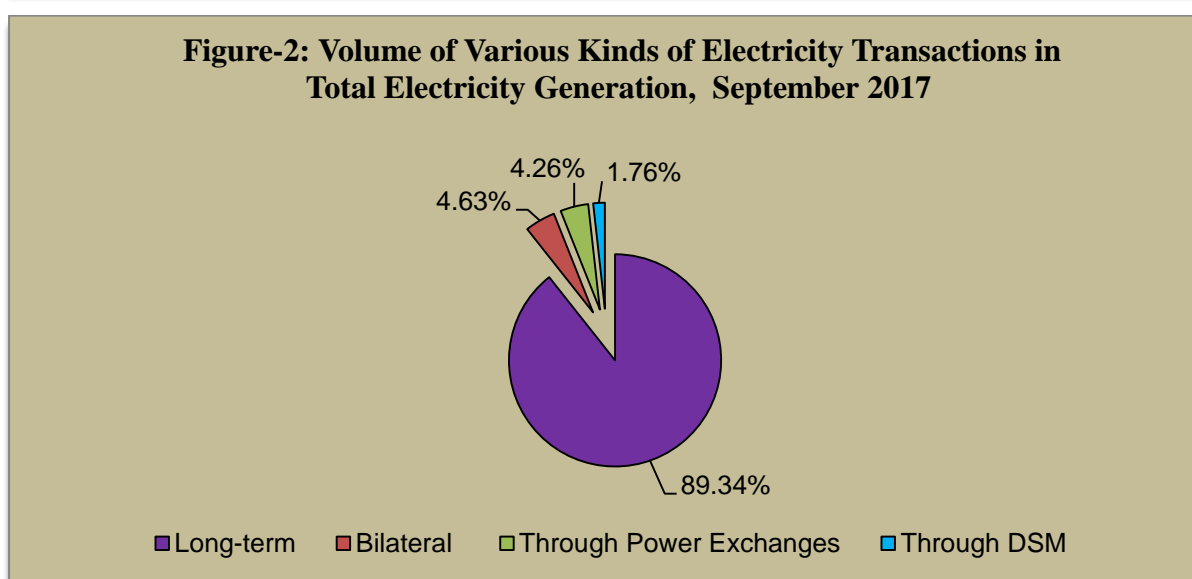
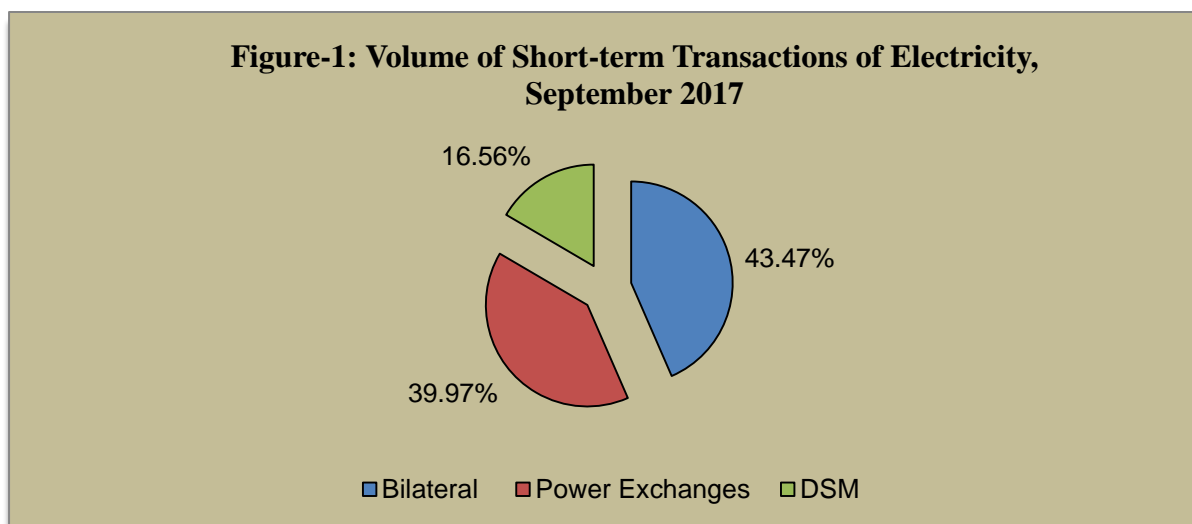


Figure-3: Volume of Short-term Transactions of Electricity, September 2017 (Day-wise)

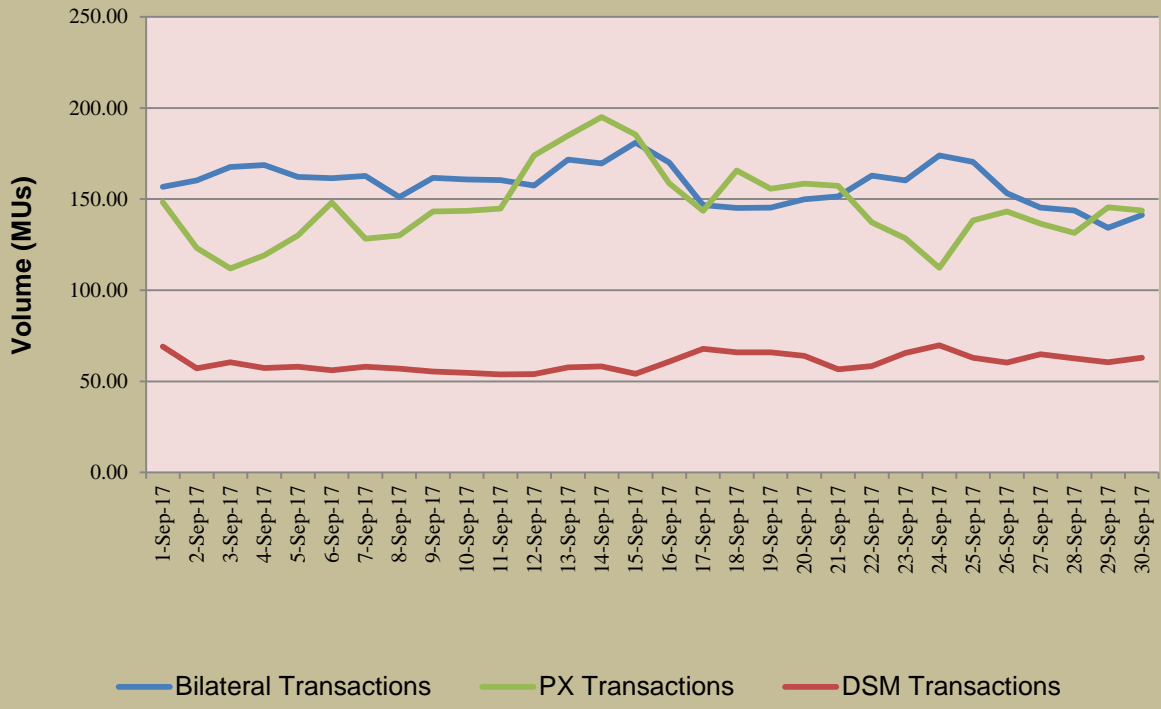


Table-2: PERCENTAGE SHARE OF ELECTRICITY TRANSACTED BY TRADING LICENSEES, SEPTEMBER 2017			
Sr.No	Name of the Trading Licensee	% Share in total Volume transacted by Trading Licensees	Herfindahl-Hirschman Index
1	PTC India Ltd.	35.39	0.1253
2	NTPC Vidyut Vyapar Nigam Ltd.	11.26	0.0127
3	Manikaran Power Ltd.	9.72	0.0095
4	Mittal Processors (P) Ltd.	9.24	0.0085
5	Tata Power Trading Company (P) Ltd.	7.52	0.0057
6	JSW Power Trading Company Ltd	6.85	0.0047
7	Adani Enterprises Ltd.	4.82	0.0023
8	GMR Energy Trading Ltd.	4.50	0.0020
9	Arunachal Pradesh Power Corporation (P) ltd	4.46	0.0020
10	Jaiprakash Associates Ltd.	1.61	0.0003
11	National Energy Trading & Services Ltd.	0.89	0.0001
12	Essar Electric Power Development Corp. Ltd.	0.82	0.0001
13	Knowledge Infrastructure Systems (P) Ltd	0.77	0.0001
14	Statkraft Markets Pvt. Ltd.	0.53	0.0000
15	RPG Power Trading Company Ltd.	0.51	0.0000
16	Instinct Infra & Power Ltd.	0.27	0.0000
17	Shree Cement Ltd.	0.26	0.0000
18	Customized Energy Solutions India (P) Ltd.	0.17	0.0000
19	Gita Power & Infrastructure Private Limited	0.16	0.0000
20	My Home Power Private Ltd.	0.14	0.0000
21	Shyam Indus Power Solutions Private Limited	0.07	0.0000
22	Parshavanath Power Projects Private Limited	0.04	0.0000
23	Phillip Commodities India (P) Ltd.	0.01	0.0000
TOTAL		100.00%	0.1732
Top 5 trading licensees		73.14%	
<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>			

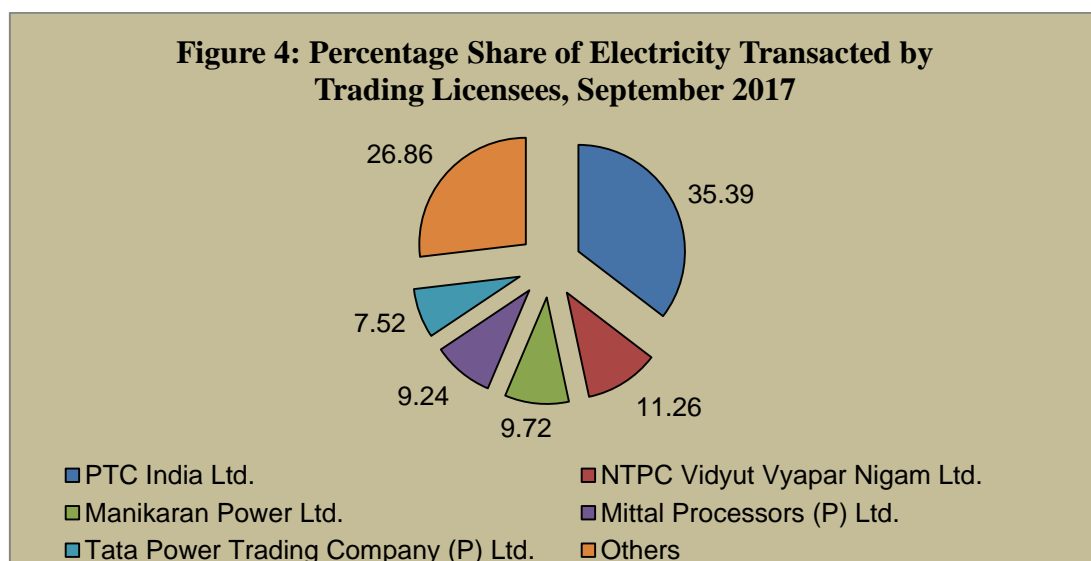


Table-3: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS, SEPTEMBER 2017		
Sr.No	Item	Sale Price of Traders (₹/kWh)
1	Minimum	2.40
2	Maximum	6.40
3	Weighted Average	3.57

Source: Information submitted by trading licensees

Table-4: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS (TIME-WISE), SEPTEMBER 2017		
Sr.No	Period of Trade	Sale Price of Traders (₹/kWh)
1	RTC	3.70
2	PEAK	3.97
3	OFF PEAK	3.14

Source: Information submitted by trading licensees

Table-5: PRICE OF ELECTRICITY TRANSACTED THROUGH POWER EXCHANGES, SEPTEMBER 2017			
Sr.No	ACP	Price in IEX (₹/kWh)	Price in PXIL (₹/kWh)
1	Minimum	1.20	1.84
2	Maximum	9.91	7.01
3	Weighted Average	4.25	4.01

Source: Information submitted by IEX and PXIL

Table-6: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF IEX, SEPTEMBER 2017			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	30.21	4.67
2	Day Ahead Contingency Contracts	122.36	4.45
	Total	152.57	4.49

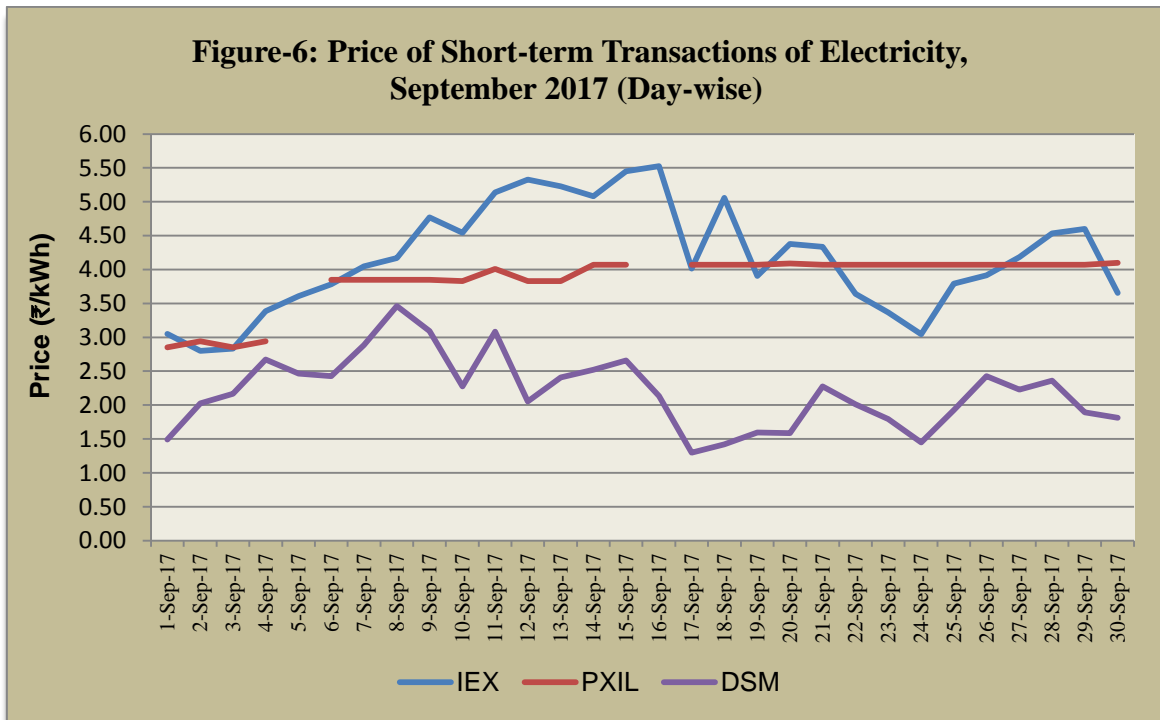
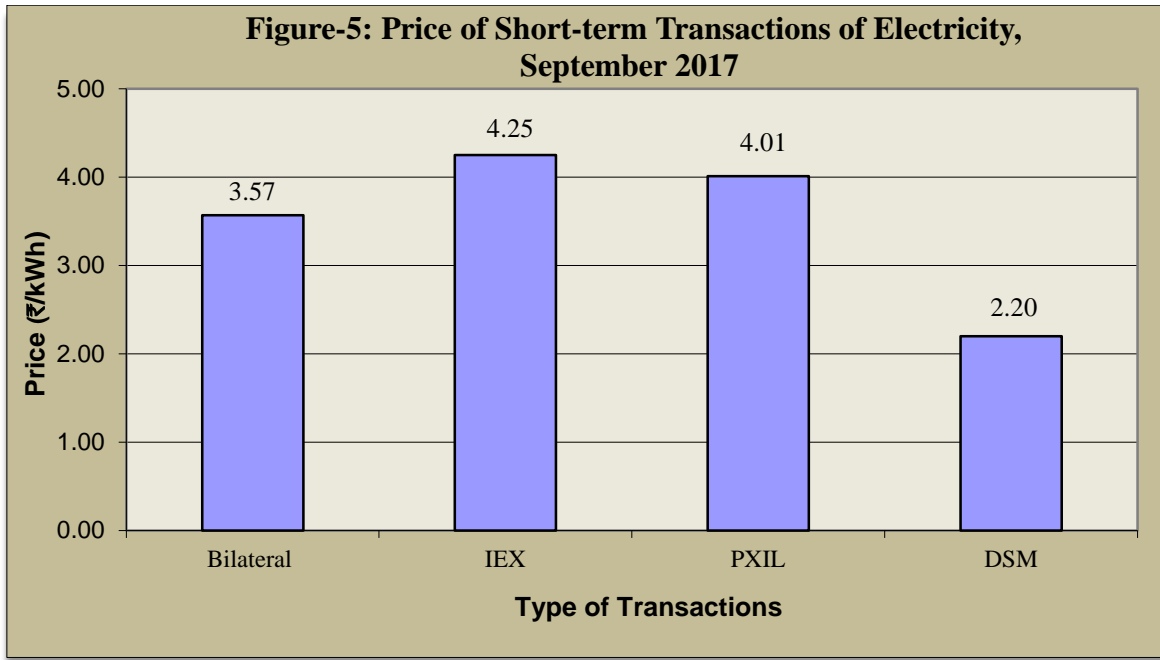
Source: IEX

Table-7: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF PXIL, SEPTEMBER 2017			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	71.88	4.79
2	Any Day(s) Contracts	29.66	3.94
	Total	101.55	4.54

Source: PXIL

Table-8: PRICE OF ELECTRICITY TRANSACTED THROUGH DSM, SEPTEMBER 2017		
Sr.No	Item	Price in All India Grid (₹/kWh)
1	Minimum	0.00
2	Maximum	8.24
3	Average	2.20

Source: NLDC



Note: For PXIL, on 5th and 16th September 2017, there were no sellers in Day Ahead Product, hence, discontinuous price curve.

Table-9: VOLUME OF ELECTRICITY SOLD THROUGH BILATERAL, SEPTEMBER 2017		
Name of the Entity	Volume of Sale (MUs)	% of Volume
SEMBCORP	657.37	13.72
HIMACHAL PRADESH	593.56	12.39
MP	375.59	7.84
J & K	358.43	7.48
JAYPEE NIGRIE	296.66	6.19
ANDHRA PRADESH	193.21	4.03
WEST BENGAL	186.70	3.90
ESSAR POWER	177.56	3.70
JINDAL POWER	158.73	3.31
DVC	133.94	2.79
GUJARAT	125.34	2.62
COASTGEN	118.92	2.48
UTTARAKHAND	113.16	2.36
ADHUNIK POWER LTD	110.55	2.31
MEENAKSHI	91.56	1.91
DELHI	90.04	1.88
TEESTA STG3	87.89	1.83
DAGACHU	86.49	1.80
KARCHAM WANGTOO	84.22	1.76
MEGHALAYA	69.73	1.46
THERMAL POWERTECH	62.57	1.31
MAHARASHTRA	62.14	1.30
JITPL	59.00	1.23
RAJASTHAN	54.58	1.14
SHREE CEMENT	45.42	0.95
MB POWER	44.25	0.92
ODISHA	42.50	0.89
DB POWER	36.61	0.76
ONGC PALATANA	35.40	0.74
SPECTRUM	35.31	0.74
ILF&S	32.89	0.69
AD HYDRO	28.78	0.60
MANIPUR	22.38	0.47
TELANGANA	20.26	0.42
KARNATAKA	10.54	0.22
ASSAM	10.43	0.22
ACBIL	10.01	0.21
GOA	9.80	0.20
JHARKHAND	9.75	0.20
LANKO_AMK	9.58	0.20
CHUZACHEN HEP	8.12	0.17
MARUTI COAL	6.62	0.14
HARYANA	4.45	0.09
SIKKIM	4.10	0.09
PUNJAB	4.02	0.08
TAMIL NADU	4.00	0.08
JHABUA POWER_MP	3.62	0.08
BALCO	2.83	0.06
GMR KAMALANGA	0.97	0.02
MIZORAM	0.79	0.02
TOTAL	4792.46	100.00
Volume Sold by top 5 Regional Entities	2281.62	47.61

Table-10: VOLUME OF ELECTRICITY PURCHASED THROUGH BILATERAL, SEPTEMBER 2017		
Name of the Entity	Volume of Purchase (MUs)	% of Volume
PUNJAB	738.33	15.55
UTTAR PRADESH	587.33	12.37
HARYANA	417.14	8.79
TAMIL NADU	409.73	8.63
DELHI	392.19	8.26
CHHATTISGARH	329.69	6.94
TELANGANA	298.01	6.28
ANDHRA PRADESH	297.65	6.27
MAHARASHTRA	210.06	4.42
BANGLADESH	177.35	3.74
BIHAR	167.40	3.53
ESSAR STEEL	162.40	3.42
JHARKHAND	93.43	1.97
UTTARAKHAND	75.72	1.59
WEST BENGAL	65.15	1.37
ODISHA	64.44	1.36
NEPAL(NVVN)	58.45	1.23
ASSAM	48.06	1.01
GUJARAT	35.08	0.74
MP	31.57	0.66
GOA	28.98	0.61
KERALA	16.56	0.35
HIMACHAL PRADESH	15.46	0.33
RAJASTHAN	7.97	0.17
TRIPURA	7.26	0.15
DADRA & NAGAR HAVELI	5.80	0.12
DVC	3.16	0.07
KARNATAKA	2.50	0.05
MEGHALAYA	0.51	0.01
BALCO	0.44	0.01
MANIPUR	0.22	0.00
JINDAL POWER	0.15	0.00
TOTAL	4748.18	100.00
Volume Purchased by top 5 Regional Entities	2544.71	53.59

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

Name of the Entity	Volume of Sale (MUs)	% of Volume
TEESTA STG3	513.39	11.76
GUJARAT	445.89	10.21
ILF&S	262.46	6.01
KARNATAKA	223.99	5.13
HIMACHAL PRADESH	211.59	4.85
MP	205.16	4.70
JINDAL POWER	201.28	4.61
SEMBCORP	171.22	3.92
PUNJAB	166.59	3.82
DELHI	146.41	3.35
KARCHAM WANGTOO	127.42	2.92
DB POWER	91.54	2.10
UTTARAKHAND	77.24	1.77
RAJASTHAN	76.17	1.74
ODISHA	69.16	1.58
JITPL	67.49	1.55
JAYPEE NIGRIE	67.35	1.54
JORETHANG	66.62	1.53
ANDHRA PRADESH	64.31	1.47
DIKCHU HEP	62.37	1.43
SIKKIM	62.20	1.42
CHUZACHEN HEP	60.82	1.39
MEGHALAYA	57.73	1.32
SHREE CEMENT	57.11	1.31
J & K	54.71	1.25
NLC	50.25	1.15
ESSAR POWER	48.93	1.12
THERMAL POWERTECH	46.56	1.07
MAHARASHTRA	44.80	1.03
SAINJ HEP	41.74	0.96
UTTAR PRADESH	41.64	0.95
ACBIL	36.05	0.83
MB POWER	35.25	0.81
MEENAKSHI	34.46	0.79
AD HYDRO	32.32	0.74
TELANGANA	30.82	0.71
HARYANA	27.04	0.62
TAMIL NADU	23.57	0.54
COASTGEN	22.83	0.52
SPECTRUM	21.90	0.50
TRN ENERGY	18.99	0.43

DVC	18.92	0.43
TRIPURA	18.64	0.43
NJPC	18.51	0.42
WEST BENGAL	17.02	0.39
MIZORAM	14.39	0.33
NTPC STATIONS-WR	12.91	0.30
NTPC STATIONS-NER	12.68	0.29
NTPC STATIONS-ER	12.34	0.28
JHABUA POWER_MP	9.60	0.22
ASSAM	8.83	0.20
ADHUNIK POWER LTD	8.04	0.18
CHANDIGARH	7.06	0.16
MARUTI COAL	5.29	0.12
MALANA	4.54	0.10
DCPP	4.37	0.10
KERALA	3.95	0.09
ONGC PALATANA	3.94	0.09
LANCO BUDHIL	3.81	0.09
NAGALAND	3.18	0.07
MAITHON POWER LTD	2.83	0.06
CHHATTISGARH	1.95	0.04
MANIPUR	1.75	0.04
DHARIWAL POWER	1.74	0.04
GOA	1.43	0.03
GMR KAMALANGA	1.35	0.03
DADRA & NAGAR HAVELI	0.14	0.00
TOTAL	4366.54	100.00
Volume sold by top 5 Regional Entities	1657.32	37.96

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

Name of the Entity	Volume of Purchase (MUs)	% of Volume
BIHAR	661.74	15.15
WEST BENGAL	538.37	12.33
UTTAR PRADESH	521.36	11.94
TELANGANA	470.02	10.76
GUJARAT	326.85	7.49
TAMIL NADU	322.56	7.39
MAHARASHTRA	220.55	5.05
ODISHA	179.92	4.12
KARNATAKA	146.29	3.35
ASSAM	137.94	3.16
ANDHRA PRADESH	136.44	3.12
J & K	118.62	2.72
BALCO	97.13	2.22
RAJASTHAN	89.77	2.06
KERALA	61.62	1.41
MP	53.62	1.23
DELHI	48.53	1.11
HARYANA	37.96	0.87
CHHATTISGARH	36.78	0.84
DAMAN AND DIU	30.62	0.70
GOA	23.93	0.55
DVC	22.32	0.51
DADRA & NAGAR HAVELI	16.92	0.39
UTTARAKHAND	16.61	0.38
ESSAR STEEL	12.02	0.28
MEGHALAYA	10.91	0.25
CHANDIGARH	8.69	0.20
HIMACHAL PRADESH	8.61	0.20
TRIPURA	6.38	0.15
PONDICHERRY	1.40	0.03
PUNJAB	0.93	0.02
NAGALAND	0.73	0.02
MANIPUR	0.39	0.01
TOTAL	4366.54	100.00
Volume purchased by top 5 Regional Entities	2518.34	57.67

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

Name of the Entity	Volume of Under drawal (MUs)	% of Volume
NTPC STATIONS-WR	95.60	6.36
TELANGANA	81.45	5.41
NTPC STATIONS-NR	75.43	5.01
KARNATAKA	62.66	4.17
TAMIL NADU	62.18	4.13
GUJARAT	60.86	4.05
SASAN UMPP	58.27	3.87
MAHARASHTRA	57.45	3.82
NHPC STATIONS	47.05	3.13
NLC	44.73	2.97
BIHAR	44.63	2.97
PUNJAB	43.15	2.87
ANDHRA PRADESH	39.58	2.63
DELHI	38.62	2.57
UTTAR PRADESH	37.40	2.49
MP	34.15	2.27
NEPAL(NVVN)	32.87	2.19
RAJASTHAN	30.91	2.05
UTTARAKHAND	30.83	2.05
SPECTRUM	29.17	1.94
CHHATTISGARH	29.07	1.93
HARYANA	23.56	1.57
ESSAR STEEL	19.99	1.33
NJPC	19.87	1.32
CHANDIGARH	19.85	1.32
NEEPCO STATIONS	19.77	1.31
NTPC STATIONS-SR	19.65	1.31
HIMACHAL PRADESH	18.57	1.23
NTPC STATIONS-ER	18.48	1.23
WEST BENGAL	17.29	1.15
ARUNACHAL PRADESH	14.55	0.97
TEESTA STG3	14.15	0.94
MEGHALAYA	12.74	0.85
DVC	11.91	0.79
TRIPURA	11.59	0.77
TEESTA HEP	11.14	0.74
JHARKHAND	10.86	0.72
ASSAM	10.83	0.72
KARCHAM WANGTOO	10.47	0.70
GOA	10.31	0.69
AD HYDRO	9.67	0.64
J & K	9.27	0.62
THERMAL POWERTECH	8.07	0.54
ODISHA	7.13	0.47
CGPL	7.05	0.47
PONDICHERRY	6.76	0.45
MANIPUR	6.61	0.44
GMR KAMALANGA	6.41	0.43

JINDAL POWER	6.26	0.42
DB POWER	5.57	0.37
EMCO	4.91	0.33
LANKO_AMK	4.78	0.32
URI-2	4.59	0.30
NAGALAND	4.32	0.29
SIKKIM	4.27	0.28
JORETHANG	3.99	0.27
BALCO	3.97	0.26
ACBIL	3.91	0.26
RGPPL (DABHOL)	3.76	0.25
MAITHON POWER LTD	3.60	0.24
KSK MAHANADI	3.55	0.24
MB POWER	3.54	0.24
JINDAL STAGE-II	3.39	0.23
MIZORAM	3.39	0.23
COASTGEN	3.21	0.21
NSPCL	3.00	0.20
CHUZACHEN HEP	2.81	0.19
ESSAR POWER	2.76	0.18
LANCO BUDHIL	2.68	0.18
TRN ENERGY	2.67	0.18
JAYPEE NIGRIE	2.62	0.17
DADRA & NAGAR HAVELI	2.06	0.14
KERALA	2.06	0.14
JITPL	2.04	0.14
DCPP	2.01	0.13
RKM POWER	1.94	0.13
JHABUA POWER_MP	1.91	0.13
ILF&S	1.79	0.12
ADHUNIK POWER LTD	1.68	0.11
RANGIT HEP	1.58	0.10
BANGLADESH	1.35	0.09
MEENAKSHI	1.28	0.08
DHARIWAL POWER	1.23	0.08
SHREE CEMENT	0.93	0.06
SEMBCORP	0.80	0.05
MALANA	0.46	0.03
DAMAN AND DIU	0.39	0.03
DAGACHU	0.30	0.02
NETCL VALLUR	0.25	0.02
TOTAL	1504.22	100.00
Volume Exported by top 5 Regional Entities	377.31	25.08

Table-14: VOLUME OF ELECTRICITY OVER DRAWAL (IMPORTED) THROUGH DSM, SEPTEMBER 2017		
Name of the Entity	Volume of Over drawal (MUs)	% of Volume
UTTAR PRADESH	133.84	6.68
ODISHA	106.99	5.34
J & K	100.18	5.00
RAJASTHAN	98.41	4.91
HARYANA	85.79	4.28
WEST BENGAL	79.41	3.96
MP	75.30	3.76
MAHARASHTRA	74.12	3.70
TAMIL NADU	69.30	3.46
NTPC STATIONS-WR	61.22	3.06
NTPC STATIONS-NR	58.49	2.92
DVC	53.42	2.67
NTPC STATIONS-ER	52.18	2.60
ANDHRA PRADESH	51.38	2.56
KERALA	50.18	2.50
KARNATAKA	47.85	2.39
ASSAM	47.66	2.38
GUJARAT	46.55	2.32
PUNJAB	46.30	2.31
CHHATTISGARH	45.21	2.26
HIMACHAL PRADESH	42.21	2.11
NEPAL(NVVN)	40.82	2.04
NTPC STATIONS-SR	39.85	1.99
BIHAR	37.56	1.87
JHARKHAND	34.87	1.74
TELANGANA	25.84	1.29
DAMAN AND DIU	24.70	1.23
DADRA & NAGAR HAVELI	22.87	1.14
SEBPCORP	20.88	1.04
ESSAR STEEL	20.23	1.01
NJPC	19.87	0.99
CGPL	19.60	0.98
ILF&S	18.80	0.94
UTTARAKHAND	18.24	0.91
DELHI	17.56	0.88
NLC	14.98	0.75
NETCL VALLUR	12.90	0.64
GOA	10.81	0.54
KARCHAM WANGTOO	10.47	0.52
DAGACHU	10.29	0.51
THERMAL POWERTECH	10.13	0.51
AD HYDRO	9.67	0.48
JAYPEE NIGRIE	8.85	0.44
TRIPURA	7.58	0.38
MB POWER	7.47	0.37
BALCO	6.00	0.30
MEENAKSHI	5.82	0.29
NHPC STATIONS	5.48	0.27
NSPCL	4.84	0.24

ESSAR POWER	4.68	0.23
URI-2	4.59	0.23
ACBIL	4.54	0.23
MEGHALAYA	4.51	0.22
JINDAL POWER	4.47	0.22
NAGALAND	4.34	0.22
GMR KAMALANGA	4.11	0.21
JINDAL STAGE-II	3.93	0.20
PONDICHERRY	3.91	0.20
SPECTRUM	3.43	0.17
JITPL	2.99	0.15
RKM POWER	2.78	0.14
JHABUA POWER_MP	2.69	0.13
LANCO BUDHIL	2.68	0.13
SIKKIM	2.64	0.13
MAITHON POWER LTD	2.55	0.13
ADHUNIK POWER LTD	2.52	0.13
MANIPUR	2.28	0.11
NEEPCO STATIONS	2.23	0.11
DCPP	2.23	0.11
EMCO	1.99	0.10
GMR CHATTISGARH	1.87	0.09
TRN ENERGY	1.78	0.09
MIZORAM	1.68	0.08
COASTGEN	1.54	0.08
DB POWER	1.49	0.07
CHANDIGARH	1.22	0.06
RGPPL (DABHOL)	1.12	0.06
ARUNACHAL PRADESH	1.02	0.05
BANGLADESH	1.01	0.05
DGEN MEGA POWER	0.95	0.05
SHREE CEMENT	0.93	0.05
CHUZACHEN HEP	0.93	0.05
LANKO KONDAPALLI	0.86	0.04
JORETHANG	0.73	0.04
SASAN UMPP	0.69	0.03
SIMHAPURI	0.62	0.03
MALANA	0.46	0.02
KORBA WEST POWER	0.43	0.02
KSK MAHANADI	0.41	0.02
RANGIT HEP	0.36	0.02
LANKO_AMK	0.35	0.02
DHARIWAL POWER	0.35	0.02
TEESTA HEP	0.06	0.00
TEESTA STG3	0.01	0.00
TOTAL	2003.90	100.00
Volume Imported by top 5 Regional Entities	525.21	26.21

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

Sr.No.	Name of the Entity	Total volume of net short-term transactions of electricity*
1	UTTAR PRADESH	1163.49
2	BIHAR	822.07
3	TAMIL NADU	711.84
4	TELANGANA	661.35
5	PUNJAB	571.81
6	HARYANA	485.85
7	WEST BENGAL	461.91
8	CHHATTISGARH	380.66
9	MAHARASHTRA	340.35
10	ODISHA	232.56
11	ASSAM	203.57
12	ANDHRA PRADESH	188.36
13	DELHI	183.20
14	BANGLADESH	177.00
15	ESSAR STEEL	174.66
16	KERALA	122.12
17	JHARKHAND	107.69
18	BALCO	96.78
19	NEPAL(NVVN)	66.39
20	DAMAN AND DIU	54.92
21	DADRA & NAGAR HAVELI	43.38
22	GOA	42.18
23	RAJASTHAN	34.48
24	NTPC STATIONS-ER	21.35
25	NTPC STATIONS-SR	20.21
26	NETCL VALLUR	12.65
27	CGPL	12.55
28	GMR CHATTISGARH	1.87
29	NSPCL	1.85
30	DGEN MEGA POWER	0.95
31	LANKO KONDAPALLI	0.86
32	RKM POWER	0.84
33	SIMHAPURI	0.62
34	RANGIT HEP	-1.22
35	PONDICHERRY	-1.46
36	DHARIWAL POWER	-2.62
37	RGPPL (DABHOL)	-2.63
38	EMCO	-2.92
39	NAGALAND	-3.04
40	KSK MAHANADI	-3.14
41	LANCO BUDHIL	-3.81
42	MAITHON POWER LTD	-3.88
43	DCPP	-4.15
44	MALANA	-4.54
45	GMR KAMALANGA	-4.61
46	TRIPURA	-9.02
47	TEESTA HEP	-11.08
48	MARUTI COAL	-11.91
49	JHABUA POWER_MP	-12.43
50	NTPC STATIONS-NER	-12.68
51	ARUNACHAL PRADESH	-13.52

52	LANKO_AMK	-14.00
53	MIZORAM	-16.89
54	NTPC STATIONS-NR	-16.94
55	CHANDIGARH	-16.99
56	NEEPCO STATIONS	-17.54
57	NJPC	-18.51
58	TRN ENERGY	-20.13
59	MANIPUR	-27.86
60	ONGC PALATANA	-39.34
61	NHPC STATIONS	-41.57
62	SAINJ HEP	-41.74
63	ACBIL	-45.44
64	NTPC STATIONS-WR	-47.29
65	SASAN UMPP	-57.58
66	AD HYDRO	-61.10
67	DIKCHU HEP	-62.37
68	SIKKIM	-67.94
69	JORETHANG	-69.88
70	CHUZACHEN HEP	-70.82
71	MB POWER	-75.57
72	DAGACHU	-76.50
73	NLC	-80.00
74	SPECTRUM	-82.95
75	DVC	-85.86
76	KARNATAKA	-100.56
77	SHREE CEMENT	-102.53
78	THERMAL POWERTECH	-107.07
79	UTTARAKHAND	-110.66
80	ADHUNIK POWER LTD	-117.75
81	MEENAKSHI	-121.47
82	MEGHALAYA	-124.28
83	JITPL	-125.53
84	DB POWER	-132.23
85	COASTGEN	-143.41
86	J & K	-203.62
87	KARCHAM WANGTOO	-211.64
88	GUJARAT	-223.62
89	ESSAR POWER	-224.58
90	ILF&S	-278.34
91	JAYPEE NIGRIE	-357.77
92	JINDAL POWER	-361.64
93	MP	-454.42
94	TEESTA STG3	-615.41
95	HIMACHAL PRADESH	-757.45
96	SEMBCORP	-808.51

* 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, SEPTEMBER 2017			
	Details of Congestion	IEX	PXIL
A	Unconstrained Cleared Volume* (MUs)	4086.67	279.94
B	Actual Cleared Volume and hence scheduled (MUs)	4086.60	279.94
C	Volume of electricity that could not be cleared and hence not scheduled because of congestion (MUs) (A-B)	0.07	0.00
D	Volume of electricity that could not be cleared as % to Unconstrained Cleared Volume	0.002%	0.00%
E	Percentage of the time congestion occurred during the month (Number of hours congestion occurred/Total number of hours in the month)	0.38%	0.00%
F	Congestion occurrence (%) time block wise		
	0.00 - 6.00 hours	0.00%	0.00%
	6.00 - 12.00 hours	54.55%	0.00%
	12.00 - 18.00 hours	45.45%	0.00%
	18.00 - 24.00 hours	0.00%	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), SEPTEMBER 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-Sep-17	127.89	28.90	148.33	0.04	69.01	3154.79
2-Sep-17	129.24	31.10	123.22	0.04	57.13	3186.81
3-Sep-17	137.54	30.17	111.98	0.04	60.48	3139.15
4-Sep-17	138.58	30.14	119.13	0.04	57.34	3346.79
5-Sep-17	131.62	30.54	130.10	0.00	57.99	3382.31
6-Sep-17	129.86	31.65	143.30	4.80	56.15	3458.50
7-Sep-17	130.96	31.84	123.44	4.80	57.93	3508.59
8-Sep-17	122.96	28.19	125.29	4.80	57.00	3530.31
9-Sep-17	129.10	32.59	125.38	17.83	55.35	3543.97
10-Sep-17	124.82	35.92	127.33	16.27	54.65	3537.73
11-Sep-17	125.74	34.79	130.43	14.30	53.82	3618.31
12-Sep-17	122.85	34.60	160.54	13.44	53.91	3644.69
13-Sep-17	134.63	37.06	174.13	10.80	57.72	3658.27
14-Sep-17	136.10	33.45	182.99	12.00	58.16	3594.11
15-Sep-17	142.78	38.21	173.39	12.00	54.05	3593.57
16-Sep-17	132.32	37.83	158.65	0.00	60.82	3530.15
17-Sep-17	109.28	37.41	131.61	12.00	67.82	3300.07
18-Sep-17	105.55	39.61	153.63	12.00	65.96	3293.49
19-Sep-17	105.15	40.18	143.75	12.00	65.82	3315.38
20-Sep-17	109.81	40.14	145.80	12.75	63.98	3329.91
21-Sep-17	110.40	41.15	145.27	12.00	56.61	3412.90
22-Sep-17	117.31	45.56	125.31	12.00	58.27	3361.11
23-Sep-17	121.59	38.62	116.48	12.00	65.57	3335.09
24-Sep-17	135.48	38.51	100.25	12.00	69.70	3298.36
25-Sep-17	131.27	39.22	126.35	12.00	63.00	3423.30
26-Sep-17	116.74	36.42	131.30	12.00	60.30	3488.80
27-Sep-17	109.46	35.94	124.51	12.00	64.84	3495.47
28-Sep-17	108.00	35.69	119.40	12.00	62.48	3441.25
29-Sep-17	99.31	35.03	133.50	12.00	60.40	3344.37
30-Sep-17	105.97	35.26	131.79	12.00	62.94	3247.39
Total	3682.30	1065.73	4086.60	279.94	1809.20	102514.94

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), SEPTEMBER, 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-Sep-17	2.02	7.13	3.05	2.85	2.85	2.85	0.00	5.32	1.49
2-Sep-17	1.60	5.85	2.80	2.94	2.94	2.94	0.36	3.45	2.02
3-Sep-17	1.20	5.00	2.83	2.85	2.85	2.85	0.36	5.32	2.17
4-Sep-17	1.20	8.10	3.38	2.94	2.94	2.94	1.42	5.11	2.67
5-Sep-17	1.95	7.61	3.61	0.00	0.00	0.00	0.00	4.91	2.46
6-Sep-17	2.50	8.01	3.78	3.85	3.85	3.85	0.00	5.74	2.43
7-Sep-17	2.50	8.20	4.05	3.85	3.85	3.85	1.07	5.32	2.88
8-Sep-17	2.88	8.70	4.17	3.28	6.01	3.85	1.78	6.36	3.46
9-Sep-17	3.02	9.00	4.77	3.85	3.85	3.85	1.07	6.16	3.09
10-Sep-17	2.54	6.50	4.54	3.83	3.83	3.83	0.00	5.32	2.27
11-Sep-17	3.40	9.20	5.14	2.00	6.85	4.01	1.07	5.74	3.08
12-Sep-17	3.50	9.61	5.33	3.83	3.83	3.83	0.00	3.45	2.05
13-Sep-17	3.45	9.91	5.23	3.83	3.83	3.83	0.36	3.45	2.41
14-Sep-17	3.55	7.60	5.08	4.07	4.07	4.07	0.71	4.91	2.52
15-Sep-17	3.81	7.91	5.45	4.07	4.07	4.07	1.07	5.32	2.66
16-Sep-17	4.40	6.22	5.53	0.00	0.00	0.00	0.00	5.32	2.13
17-Sep-17	2.47	5.91	4.01	4.07	4.07	4.07	0.00	3.24	1.30
18-Sep-17	3.74	6.21	5.06	4.07	4.07	4.07	0.00	3.24	1.42
19-Sep-17	2.85	5.06	3.91	4.07	4.07	4.07	0.00	3.45	1.59
20-Sep-17	3.56	5.90	4.38	3.21	4.43	4.09	0.00	3.45	1.58
21-Sep-17	3.30	6.03	4.34	4.07	4.07	4.07	0.71	3.45	2.28
22-Sep-17	2.49	5.59	3.64	4.07	4.07	4.07	0.00	3.45	2.01
23-Sep-17	1.70	5.92	3.36	4.07	4.07	4.07	0.00	5.74	1.79
24-Sep-17	1.75	3.80	3.04	4.07	4.07	4.07	0.00	3.03	1.45
25-Sep-17	1.70	6.37	3.79	4.07	4.07	4.07	0.00	8.24	1.93
26-Sep-17	1.66	6.50	3.91	2.07	6.74	4.07	0.36	5.11	2.42
27-Sep-17	2.98	7.01	4.18	1.84	6.72	4.07	0.36	3.45	2.23
28-Sep-17	3.00	7.10	4.53	2.98	7.01	4.07	0.36	5.11	2.36
29-Sep-17	2.25	7.15	4.60	2.87	5.65	4.07	0.00	3.45	1.89
30-Sep-17	2.18	6.50	3.65	2.34	6.70	4.10	0.00	3.45	1.81
	1.20#	9.91#	4.25	1.84#	7.01#	4.01	0.00#	8.24#	2.20

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), SEPTEMBER 2017

Name of the Entity	Through Bilateral			Through Power Exchange			Through DSM with Regional Grid			Total Net***
	Sale	Purchase	Net**	Sale	Purchase	Net**	Import (Over Drawl)	Export (Under Drawl)	Net**	
PUNJAB	4.02	738.33	734.31	166.59	0.93	-165.66	46.30	43.15	3.15	571.81
HARYANA	4.45	417.14	412.69	27.04	37.96	10.92	85.79	23.56	62.24	485.85
RAJASTHAN	54.58	7.97	-46.62	76.17	89.77	13.60	98.41	30.91	67.49	34.48
DELHI	90.04	392.19	302.14	146.41	48.53	-97.88	17.56	38.62	-21.06	183.20
UP	0.00	587.33	587.33	41.64	521.36	479.72	133.84	37.40	96.44	1163.49
UTTARAKHAND	113.16	75.72	-37.43	77.24	16.61	-60.63	18.24	30.83	-12.60	-110.66
HP	593.56	15.46	-578.10	211.59	8.61	-202.99	42.21	18.57	23.64	-757.45
J & K	358.43	0.00	-358.43	54.71	118.62	63.91	100.18	9.27	90.91	-203.62
CHANDIGARH	0.00	0.00	0.00	7.06	8.69	1.63	1.22	19.85	-18.63	-16.99
MP	375.59	31.57	-344.03	205.16	53.62	-151.54	75.30	34.15	41.15	-454.42
MAHARASHTRA	62.14	210.06	147.92	44.80	220.55	175.75	74.12	57.45	16.67	340.35
GUJARAT	125.34	35.08	-90.27	445.89	326.85	-119.04	46.55	60.86	-14.31	-223.62
CHHATTISGARH	0.00	329.69	329.69	1.95	36.78	34.83	45.21	29.07	16.14	380.66
GOA	9.80	28.98	19.18	1.43	23.93	22.51	10.81	10.31	0.49	42.18
DAMAN & DIU	0.00	0.00	0.00	0.00	30.62	30.62	24.70	0.39	24.30	54.92
D & N HAVELI	0.00	5.80	5.80	0.14	16.92	16.78	22.87	2.06	20.81	43.38
ANDHRA PR	193.21	297.65	104.44	64.31	136.44	72.12	51.38	39.58	11.80	188.36
KARNATAKA	10.54	2.50	-8.04	223.99	146.29	-77.70	47.85	62.66	-14.82	-100.56
KERALA	0.24	16.56	16.32	3.95	61.62	57.68	50.18	2.06	48.12	122.12
TAMIL NADU	4.00	409.73	405.73	23.57	322.56	298.99	69.30	62.18	7.12	711.84
PONDICHERRY	0.00	0.00	0.00	0.00	1.40	1.40	3.91	6.76	-2.86	-1.46
TELANGANA	20.26	298.01	277.75	30.82	470.02	439.21	25.84	81.45	-55.61	661.35
WEST BENGAL	186.70	65.15	-121.55	17.02	538.37	521.35	79.41	17.29	62.12	461.91
ODISHA	42.50	64.44	21.94	69.16	179.92	110.76	106.99	7.13	99.86	232.56
BIHAR	0.00	167.40	167.40	0.00	661.74	661.74	37.56	44.63	-7.07	822.07
JHARKHAND	9.75	93.43	83.69	0.00	0.00	0.00	34.87	10.86	24.01	107.69
SIKKIM	4.10	0.00	-4.10	62.20	0.00	-62.20	2.64	4.27	-1.63	-67.94
DVC	133.94	3.16	-130.77	18.92	22.32	3.41	53.42	11.91	41.51	-85.86
ARUNACHAL P	0.00	0.00	0.00	0.00	0.00	0.00	1.02	14.55	-13.52	-13.52
ASSAM	10.43	48.06	37.62	8.83	137.94	129.12	47.66	10.83	36.83	203.57
MANIPUR	22.38	0.22	-22.16	1.75	0.39	-1.36	2.28	6.61	-4.34	-27.86
MEGHALAYA	69.73	0.51	-69.22	57.73	10.91	-46.82	4.51	12.74	-8.24	-124.28
MIZORAM	0.79	0.00	-0.79	14.39	0.00	-14.39	1.68	3.39	-1.72	-16.89
NAGALAND	0.61	0.00	-0.61	3.18	0.73	-2.45	4.34	4.32	0.02	-3.04
TRIPURA	0.00	7.26	7.26	18.64	6.38	-12.26	7.58	11.59	-4.02	-9.02
NTPC -NR	0.00	0.00	0.00	0.00	0.00	0.00	58.49	75.43	-16.94	-16.94
NHPC STNS	0.00	0.00	0.00	0.00	0.00	0.00	5.48	47.05	-41.57	-41.57
NJPC	0.00	0.00	0.00	18.51	0.00	-18.51	19.87	19.87	0.00	-18.51
AD HYDRO	28.78	0.00	-28.78	32.32	0.00	-32.32	9.67	9.67	0.00	-61.10
KARCHAM WAN	84.22	0.00	-84.22	127.42	0.00	-127.42	10.47	10.47	0.00	-211.64
SHREE CEMEN	45.42	0.00	-45.42	57.11	0.00	-57.11	0.93	0.93	0.00	-102.53
LANCO BUDHIL	0.00	0.00	0.00	3.81	0.00	-3.81	2.68	2.68	0.00	-3.81
MALANA	0.00	0.00	0.00	4.54	0.00	-4.54	0.46	0.46	0.00	-4.54
SAINJ HEP	0.00	0.00	0.00	41.74	0.00	-41.74	0.00	0.00	0.00	-41.74
NTPC -WR	0.00	0.00	0.00	12.91	0.00	-12.91	61.22	95.60	-34.37	-47.29
JINDAL POWER	158.73	0.15	-158.58	201.28	0.00	-201.28	4.47	6.26	-1.78	-361.64
LANCO_AMK	9.58	0.00	-9.58	0.00	0.00	0.00	0.35	4.78	-4.42	-14.00
NSPCL	0.00	0.00	0.00	0.00	0.00	0.00	4.84	3.00	1.85	1.85
ACBIL	10.01	0.00	-10.01	36.05	0.00	-36.05	4.54	3.91	0.62	-45.44
BALCO	2.83	0.44	-2.39	0.00	97.13	97.13	6.00	3.97	2.04	96.78
RGPPL	0.00	0.00	0.00	0.00	0.00	0.00	1.12	3.76	-2.63	-2.63

CGPL	0.00	0.00	0.00	0.00	0.00	0.00	19.60	7.05	12.55	12.55
DCPP	0.00	0.00	0.00	4.37	0.00	-4.37	2.23	2.01	0.22	-4.15
EMCO	0.00	0.00	0.00	0.00	0.00	0.00	1.99	4.91	-2.92	-2.92
ESSAR STEEL	0.00	162.40	162.40	0.00	12.02	12.02	20.23	19.99	0.24	174.66
KSK MAHANAD	0.00	0.00	0.00	0.00	0.00	0.00	0.41	3.55	-3.14	-3.14
ESSAR POWER	177.56	0.00	-177.56	48.93	0.00	-48.93	4.68	2.76	1.91	-224.58
DB POWER	36.61	0.00	-36.61	91.54	0.00	-91.54	1.49	5.57	-4.08	-132.23
DHARIWAL POW	0.00	0.00	0.00	1.74	0.00	-1.74	0.35	1.23	-0.88	-2.62
JAYPEE NIGRIE	296.66	0.00	-296.66	67.35	0.00	-67.35	8.85	2.62	6.24	-357.77
DGEN MEGA	0.00	0.00	0.00	0.00	0.00	0.00	0.95	0.00	0.95	0.95
GMR CHATTISGA	0.00	0.00	0.00	0.00	0.00	0.00	1.87	0.00	1.87	1.87
MB POWER	44.25	0.00	-44.25	35.25	0.00	-35.25	7.47	3.54	3.93	-75.57
MARUTI COAL	6.62	0.00	-6.62	5.29	0.00	-5.29	0.00	0.00	0.00	-11.91
SPECTRUM	35.31	0.00	-35.31	21.90	0.00	-21.90	3.43	29.17	-25.75	-82.95
JHABUA P_MP	3.62	0.00	-3.62	9.60	0.00	-9.60	2.69	1.91	0.78	-12.43
SASAN UMPP	0.00	0.00	0.00	0.00	0.00	0.00	0.69	58.27	-57.58	-57.58
TRN ENERGY	0.25	0.00	-0.25	18.99	0.00	-18.99	1.78	2.67	-0.90	-20.13
RKM POWER	0.00	0.00	0.00	0.00	0.00	0.00	2.78	1.94	0.84	0.84
NTPC -SR	0.00	0.00	0.00	0.00	0.00	0.00	39.85	19.65	20.21	20.21
MEENAKSHI	91.56	0.00	-91.56	34.46	0.00	-34.46	5.82	1.28	4.54	-121.47
COASTGEN	118.92	0.00	-118.92	22.83	0.00	-22.83	1.54	3.21	-1.66	-143.41
THERMAL POW	62.57	0.00	-62.57	46.56	0.00	-46.56	10.13	8.07	2.06	-107.07
ILF&S	32.89	0.00	-32.89	262.46	0.00	-262.46	18.80	1.79	17.01	-278.34
NLC	0.00	0.00	0.00	50.25	0.00	-50.25	14.98	44.73	-29.75	-80.00
SEBPCORP	657.37	0.00	-657.37	171.22	0.00	-171.22	20.88	0.80	20.08	-808.51
NETCL VALLUR	0.00	0.00	0.00	0.00	0.00	0.00	12.90	0.25	12.65	12.65
NTPC -ER	0.00	0.00	0.00	12.34	0.00	-12.34	52.18	18.48	33.70	21.35
MAITHON POW	0.00	0.00	0.00	2.83	0.00	-2.83	2.55	3.60	-1.05	-3.88
ADHUNIK P	110.55	0.00	-110.55	8.04	0.00	-8.04	2.52	1.68	0.84	-117.75
CHUZACHEN HE	8.12	0.00	-8.12	60.82	0.00	-60.82	0.93	2.81	-1.88	-70.82
RANGIT HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.36	1.58	-1.22	-1.22
GMR KAMALAN	0.97	0.00	-0.97	1.35	0.00	-1.35	4.11	6.41	-2.30	-4.61
JITPL	59.00	0.00	-59.00	67.49	0.00	-67.49	2.99	2.04	0.95	-125.53
TEESTA HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.06	11.14	-11.08	-11.08
DAGACHU	86.49	0.00	-86.49	0.00	0.00	0.00	10.29	0.30	9.99	-76.50
JORETHANG	0.00	0.00	0.00	66.62	0.00	-66.62	0.73	3.99	-3.27	-69.88
NEPAL(NVVN)	0.00	58.45	58.45	0.00	0.00	0.00	40.82	32.87	7.94	66.39
BANGLADESH	0.00	177.35	177.35	0.00	0.00	0.00	1.01	1.35	-0.34	177.00
TEESTA STG3	87.89	0.00	-87.89	513.39	0.00	-513.39	0.01	14.15	-14.14	-615.41
DIKCHU HEP	0.00	0.00	0.00	62.37	0.00	-62.37	0.00	0.00	0.00	-62.37
NTPC -NER	0.00	0.00	0.00	12.68	0.00	-12.68	0.00	0.00	0.00	-12.68
NEEPCO STATIONS	0.00	0.00	0.00	0.00	0.00	0.00	2.23	19.77	-17.54	-17.54
ONGC PALATA	35.40	0.00	-35.40	3.94	0.00	-3.94	0.00	0.00	0.00	-39.34
TOTAL	4792.46	4748.18	-44.28	4366.54	4366.54	0.00	1993.48	1496.24	497.24	452.96
<i>Source: NLDC</i>										
<i>* 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.</i>										
<i>** (-) indicates sale and (+) indicates purchase,</i>										
<i>*** Total net includes net of transactions through bilateral, power exchange and DSM</i>										

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

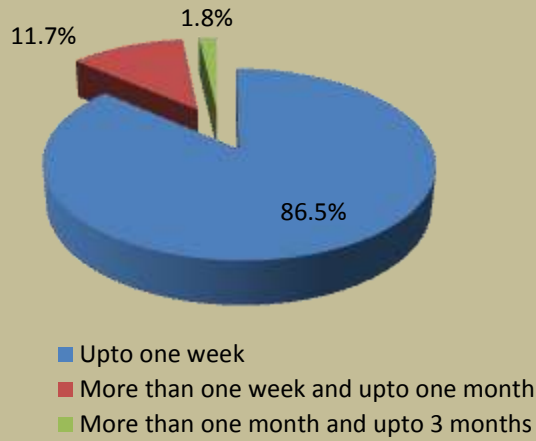


Figure-8: Forward Curve based on Prices of Bilateral Contracts

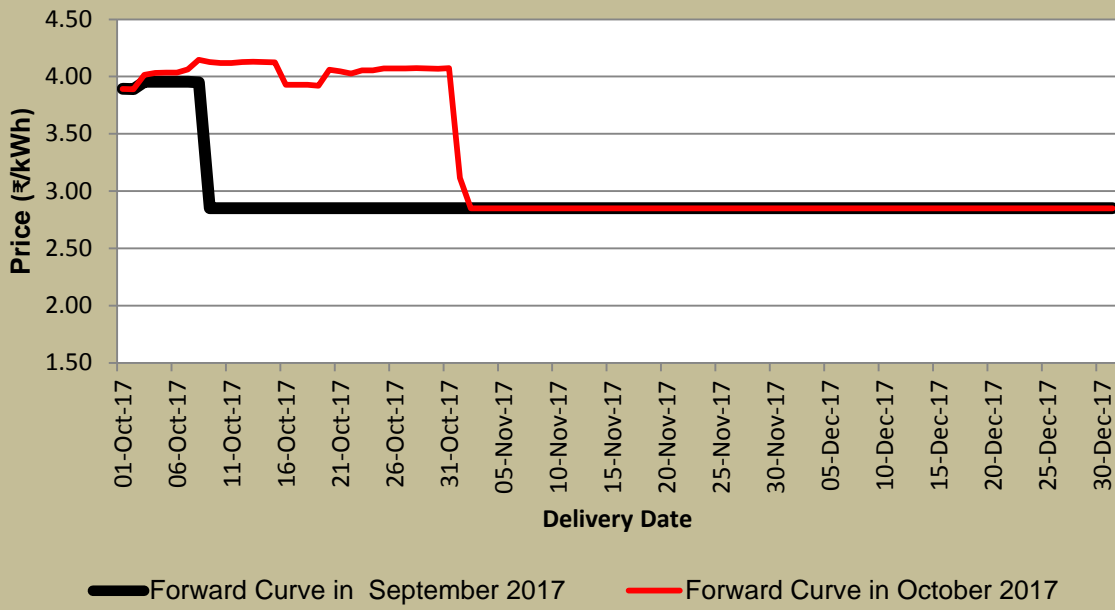


Table-20 : VOLUME AND PRICE OF RENEWABLE ENERGY CERTIFICATES (RECs) TRANSACTED THROUGH POWER EXCHANGES, SEPTEMBER 2017			
Sr.No.	Details of REC Transactions	IEX	PXIL
		Non-Solar	Non Solar
A	Volume of Buy Bid	292482	89525
B	Volume of Sell Bid	8216649	3800874
C	Ratio of Buy Bid to Sell Bid Volume	0.036	0.024
D	Market Clearing Volume (MWh)	292482	89525
E	Market Clearing Price (₹/MWh)	1500	1500

Source: IEX and PXIL

Note 1: 1 REC = 1 MWh

Note 2:

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