

Monthly Report on Short-term Transactions of Electricity in India

September, 2018



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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
LANCO BUDHIL	Lanco Budhil Hydro Power Private Limited
LANKOAMK	Lanco Amarkantak Power Private Limited
LANKOKONDAPALLY	Lanco Kondapally Power Private Limited
LOKTAK	Loktak Power Project
MALANA	Malana Hydroelectric Plant
Maruti Coal	Maruti Clean Coal and Power Limited
MB POWER	MB Power Ltd
MEENAKSHI	Meenakshi Energy Private Limited
MP	Madhya Pradesh
MUs	Million Units

NEEPCO	North Eastern Electric Power Corporation Limited
NHPC STATIONS	National Hydro Electric Power Corporation Ltd. Stations
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
NTECL Vallur	NTPC Tamilnadu Energy Company Limited Vallur
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
SKS Power	SKS Power Generation Chhatisgarh Limited
SPECTRUM	Spectrum Power Generation Ltd
TEESTA STG3	Teesta Stage 3 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 **September, 2018** are as under:

I: Volume of Short-term Transactions of Electricity

During September 2018, total electricity generation excluding generation from renewable and captive power plants in India was 108045.87 MUs (Table-1).

Of the total electricity generation, 16044.04 MUs (14.85%) was transacted through short-term, comprising of 7113.10 MUs (6.58%) through bilateral (through traders and term-ahead contracts on power exchanges and directly between distribution companies), followed by 5740.38 MUs (5.31%) through day ahead collective transactions on power exchanges and 3190.56 MUs (2.95%) through DSM (Table-1 & Figure-2).

Of the total short-term transactions, bilateral constitutes 44.33% (34.56% through traders and term-ahead contracts on power exchanges and 9.77% directly between distribution companies) followed by 35.78% through day ahead collective transactions on power exchanges and 19.89% through DSM (Table-1 & Figure-1). Daily volume of short-term transactions is shown in Table-17 & Figure-3.

The percentage share of electricity traded by each trading licensee in the total volume of electricity traded by all the trading licensees is provided in Table-2 & Figure-4. The volume of electricity transacted by the trading licensees includes bilateral transactions and the transactions undertaken through power exchanges. There were 38 trading licensees as on September, 2018. In September, 2018, 22 trading licensees were engaged in short term trading. Top 5 trading licensees had a share of 79.86% in the total volume traded by all the licensees. These are PTC India Ltd., Mittal Processors (P) Ltd., Manikaran Power Ltd., Arunachal Pradesh Power Corporation (P) Ltd. and NTPC Vidyut Vyapar Nigam Ltd.

Herfindahl-Hirschman Index (HHI) has been used for measuring the competition among the trading licensees. Increase in the HHI generally indicates 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 0.1975 for the month of September, 2018, which indicates moderate concentration of market power (Table-2).

The volume of electricity transacted through IEX and PXIL in the day ahead market was 5724.63 MUs and 15.76 MUs respectively. The volume of total buy bids and sell bids was 7408.03 MUs and 7688.27 MUs respectively in IEX while the same was 40.99 MUs and 47.70 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 103.41 MUs and 56.96 MUs respectively (Table-6 & Table-7).

II: Price of Short-term Transactions of Electricity

(i) *Price of electricity transacted through Traders:* The minimum, maximum and weighted average sale prices have been computed for the electricity transacted through traders and the sale prices were ₹3.01/kWh, ₹6.50/kWh and ₹3.99/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 ₹3.88/kWh, ₹5.41/kWh and ₹4.72/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. The minimum, maximum and weighted average prices were ₹1.75/kWh, ₹16.49/kWh and ₹4.99/kWh respectively in IEX and ₹2.41/kWh, ₹6.21/kWh and ₹5.35/kWh respectively in PXIL (Table-5).

The price of electricity transacted through IEX and PXIL in the term-ahead market was ₹5.15/kWh and ₹5.93/kWh respectively (Table-6 and Table-7).

(iii) Price of electricity transacted through DSM: The average deviation settlement price was ₹2.33/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 44.89% of the volume, and these were Madhya Pradesh, Sembcorp Gayatri Power Ltd., Himachal Pradesh, Jammu & Kashmir and Damodar Valley Corporation. Top 5 regional entities purchased 62.63% of the volume, and these were Uttar Pradesh, Punjab, Haryana, Telangana and Delhi (Table-9& 10).

Of the total power exchange transactions, top 5 regional entities sold 43.01% of the volume, and these were Punjab, Delhi, Rajasthan, Teesta Stage 3 Hydro Power Project and Uttar Pradesh. Top 5 regional entities purchased 64.08% of the volume, and these were Maharashtra, Gujarat, West Bengal, Tamil Nadu and Bihar (Table-11 & 12).

Of the total DSM transactions, top 5 regional entities underdrew 36.74% of the volume, and these were Karnataka, NTPC Stations (Western region), Sembcorp Gayatri Power Ltd.,

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.

Jammu & Kashmir and NTPC Stations (Northern region) (Table-13). Top 5 regional entities overdrew 48.90% of the volume, and these were Tamil Nadu, Telangana, Andhra Pradesh, Damodar Valley Corporation and West Bengal (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 Madhya Pradesh, Sembcorp Gayatri Power Ltd., Himachal Pradesh, Rajasthan and Teesta Stage 3 Hydro Power Project. Top 5 electricity purchasing regional entities were Maharashtra, Uttar Pradesh, Telangana, West Bengal and Tamil Nadu.

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 September 2018, congestion occurred only 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 volume (volume of electricity that would have been scheduled, had there been no congestion) and actual cleared volume.

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.

During the month, the volume of electricity that could not be cleared in IEX due to congestion was 0.08% of the unconstrained cleared volume. In terms of time, congestion occurred was 0.87% in IEX (Table-16). No congestion occurred in PXIL.

V: Bilateral Contracts executed by Traders

The above sections covered an analysis on short-term transactions of electricity in September, 2018. This section covers an analysis of bilateral contracts executed in October, 2018.

(i) Duration of bilateral contracts: During October 2018, a total of 41 bilateral contracts (excluding banking/swap contracts) have been executed by traders for the volume of 418.11 MUs. Figure-7 shows the percentage of contracts categorized according to the period of power supply. It can be observed from the figure that 75.6% of the bilateral contracts were executed for duration of up to one week, 24.4% of the contracts were executed for duration of more than a week and up to one month, while no contracts were executed for duration of more than one month.

During the month, 21 banking/swapping bilateral contracts were also executed for the volume of 1294.18 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, 2018 to 29th January, 2019 based on the bilateral contracts⁴ executed till October, 2018. Forward curves have been drawn for the contracts executed in September, 2018 and October, 2018 for the purpose of comparison. It is observed that forward contract prices are

⁴Excluding Banking/Swapping contracts

relatively higher for the contracts executed in October, 2018 compared to the contracts executed in September, 2018 during the period from 9th October 2018 to 31st December 2018.

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 April, 2011.

The details of REC transactions for the month of September, 2018 are shown in Table-20. The market clearing volume of solar RECs transacted on IEX and PXIL were 1359045 and 199017 respectively and the market clearing price of these RECs was ₹1000/MWh on both the power exchanges. Market clearing volume of non-solar RECs transacted on IEX and PXIL were 244401 and 101175 respectively and the weighted average market clearing price of these RECs was ₹1100/MWh in IEX and ₹1300/MWh in PXIL.

The gap between the volume of buy and sell bids of RECs placed through power exchanges shows about the variation in demand for both solar and non-solar RECs. For Solar RECs, the ratio of buy bids to sell bids was 1.48 and 0.37 for IEX and PXIL respectively. For non-solar RECs, the ratio of buy bids to sell bids was 1.03 and 2.68 for IEX and PXIL respectively.

VII: Inferences:

- The percentage of short-term transactions of electricity to total electricity generation was 14.85%.
- Of the total short-term transactions, bilateral constitutes 44.33% (34.56% through traders and term-ahead contracts on power exchanges and 9.77% directly between distribution companies) followed by 35.78% through day ahead collective transactions on power exchanges and 19.89% through DSM (Table-1 & Figure-1).
- Top 5 trading licensees had a share of 79.86% 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 0.1975, indicating moderate concentration of market power.
- The weighted average price of electricity transacted through trading licensees was ₹3.99/kWh. The weighted average price of electricity transacted through IEX and PXIL was ₹4.99/kWh and ₹5.35/kWh respectively.
- The average price of electricity transacted through DSM was ₹2.33/kWh.
- Top 5 electricity selling regional entities were Madhya Pradesh, Sembcorp Gayatri Power Ltd., Himachal Pradesh, Rajasthan and Teesta Stage 3 Hydro Power Project. Top 5 electricity purchasing regional entities were Maharashtra, Uttar Pradesh, Telangana, West Bengal and Tamil Nadu.
- During the month, the volume of electricity that could not be cleared in IEX due to congestion was 0.08% of the unconstrained cleared volume. In terms of time, congestion occurred was 0.87% in IEX. No congestion occurred in PXIL.
- In October 2018, 75.6% of the bilateral contracts were executed for duration of up to one week, 24.4% of the contracts were executed for duration of more than a week and up to one month, while no contracts were executed for duration of more than one month.

- The forward curve of electricity sale prices for the period from 1st October, 2018 to 29th January, 2019 based on the bilateral contracts⁵ executed till October, 2018 shows that forward contract prices are relatively higher for the contracts executed in October, 2018 compared to the contracts executed in September, 2018 during the period from 9th October 2018 to 31st December 2018.
- The market clearing volume of solar RECs transacted on IEX and PXIL 1359045 and 199017 respectively and the market clearing price of these RECs was ₹1000/MWh on both the power exchanges. Market clearing volume of non-solar RECs transacted on IEX and PXIL were 244401 and 101175 respectively and the weighted average market clearing price of these RECs was ₹1100/MWh in IEX and ₹1300/MWh in PXIL.

⁵*Excluding Banking/Swapping contracts*

Table-1: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (ALL INDIA), SEPTEMBER 2018				
Sr.No	Short-term transactions	Volume (MUs)	% to Volume of short-term transactions	% to Total Generation
1	Bilateral	7113.10	44.33	6.58
	(i) Through Traders and PXs	5545.32	34.56	5.13
	(ii) Direct	1567.78	9.77	1.45
2	Through Power Exchanges	5740.38	35.78	5.31
	(i) IEX	5724.63	35.68	5.30
	(ii) PXIL	15.76	0.10	0.015
3	Through DSM	3190.56	19.89	2.95
	Total	16044.04	-	14.85
	Total Generation	108045.87	-	-

Source: NLDC

Figure-1: Volume of Short-term Transactions of Electricity, September 2018

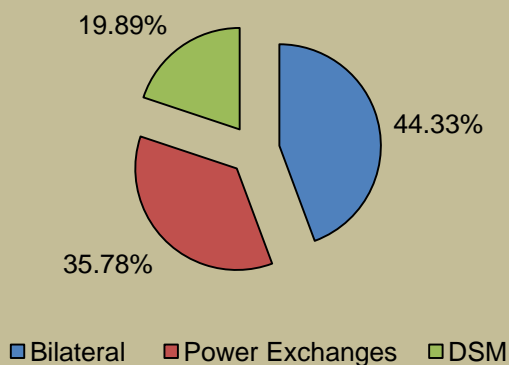


Figure-2: Volume of Various Kinds of Electricity Transactions in Total Electricity Generation, September 2018

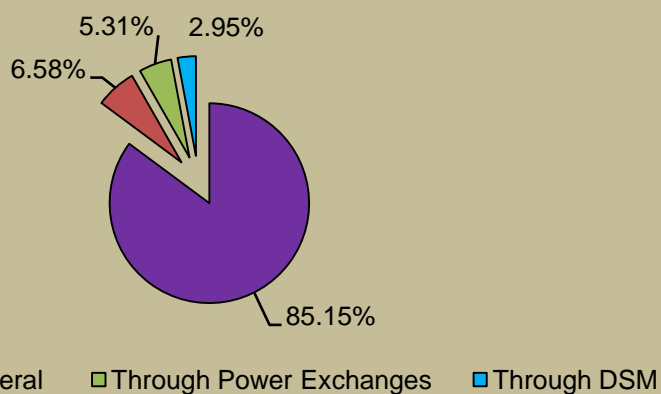


Figure-3: Volume of Short-term Transactions of Electricity, September 2018 (Day-wise)

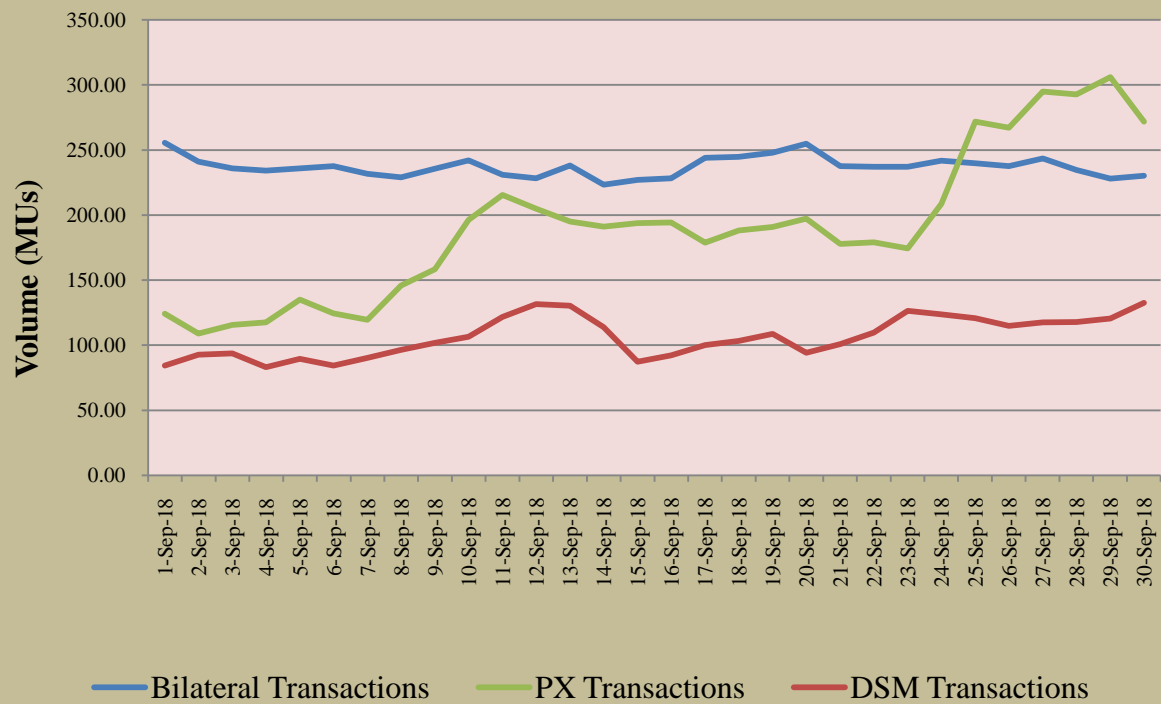


Table-2: PERCENTAGE SHARE OF ELECTRICITY TRANSACTED BY TRADING LICENSEES, SEPTEMBER 2018			
Sr.No	Name of the Trading Licensee	% Share in total Volume transacted by Trading Licensees	Herfindahl-Hirschman Index
1	PTC India Ltd.	37.67	0.1419
2	Mittal Processors (P) Ltd.	16.38	0.0268
3	Manikaran Power Ltd.	9.55	0.0091
4	Arunachal Pradesh Power Corporation (P) ltd	8.76	0.0077
5	NTPC Vidyut Vyapar Nigam Ltd.	7.50	0.0056
6	Tata Power Trading Company (P) Ltd.	5.05	0.0025
7	Adani Enterprises Ltd.	4.09	0.0017
8	GMR Energy Trading Ltd.	3.36	0.0011
9	Essar Electric Power Development Corp. Ltd.	1.64	0.0003
10	JSW Power Trading Company Ltd	1.64	0.0003
11	Jaiprakash Associates Ltd.	1.35	0.0002
12	Knowledge Infrastructure Systems (P) Ltd	1.08	0.0001
13	Statkraft Markets Pvt. Ltd.	0.84	0.0001
14	RPG Power Trading Company Ltd.	0.40	0.0000
15	Instinct Infra & Power Ltd.	0.15	0.0000
16	Customized Energy Solutions India (P) Ltd.	0.11	0.0000
17	Shree Cement Ltd.	0.11	0.0000
18	IPCL Power Trading Pvt. Ltd.	0.11	0.0000
19	My Home Power Private Ltd.	0.11	0.0000
20	National Energy Trading & Services Ltd.	0.09	0.0000
21	Gita Power & Infrastructure Private Limited	0.01	0.0000
22	Phillip Commodities India (P) Ltd.	0.01	0.0000
TOTAL		100.00%	0.1975
Top 5 trading licensees		79.86%	
<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 and Parshavnath Power Projects Pvt. Ltd. is not included.</i>			
<i>Source: Information submitted by trading licensees</i>			

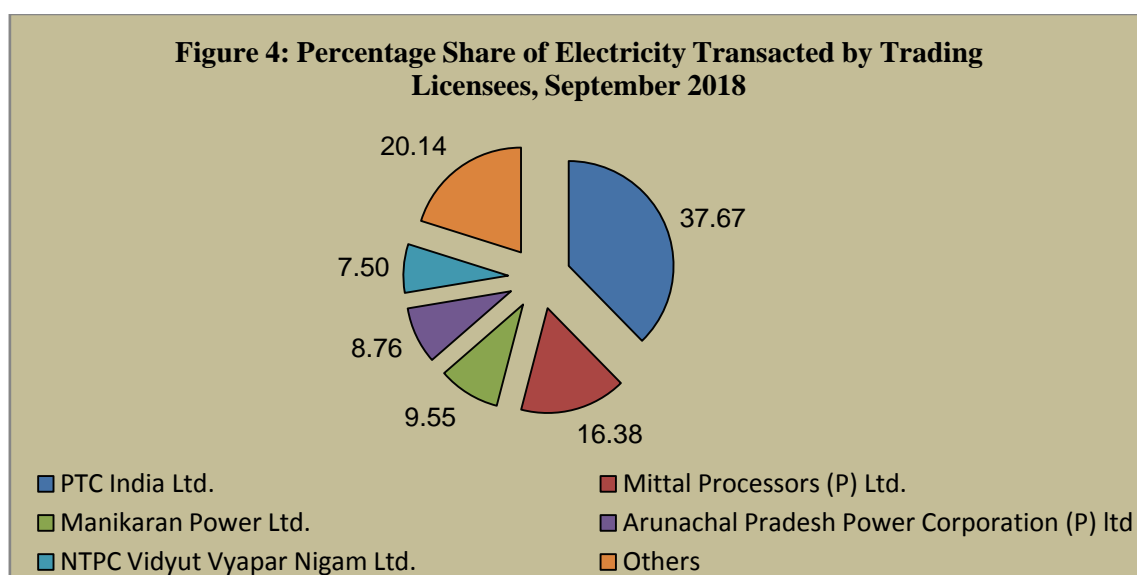


Table-3: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS, SEPTEMBER 2018		
Sr.No	Item	Sale Price of Traders (₹/kWh)
1	Minimum	3.01
2	Maximum	6.50
3	Weighted Average	3.99

Source: Information submitted by trading licensees

Table-4: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS (TIME-WISE), SEPTEMBER 2018		
Sr.No	Period of Trade	Sale Price of Traders (₹/kWh)
1	RTC	3.88
2	PEAK	5.41
3	OFF PEAK	4.72

Source: Information submitted by trading licensees

Table-5: PRICE OF ELECTRICITY TRANSACTED THROUGH POWER EXCHANGES, SEPTEMBER 2018			
Sr.No	ACP	Price in IEX (₹/kWh)	Price in PXIL (₹/kWh)
1	Minimum	1.75	2.41
2	Maximum	16.49	6.21
3	Weighted Average	4.99	5.35

Source: Information submitted by IEX and PXIL

Table-6: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF IEX, SEPTEMBER 2018			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	37.81	5.11
2	Day Ahead Contingency Contracts	65.60	5.17
	Total	103.41	5.15

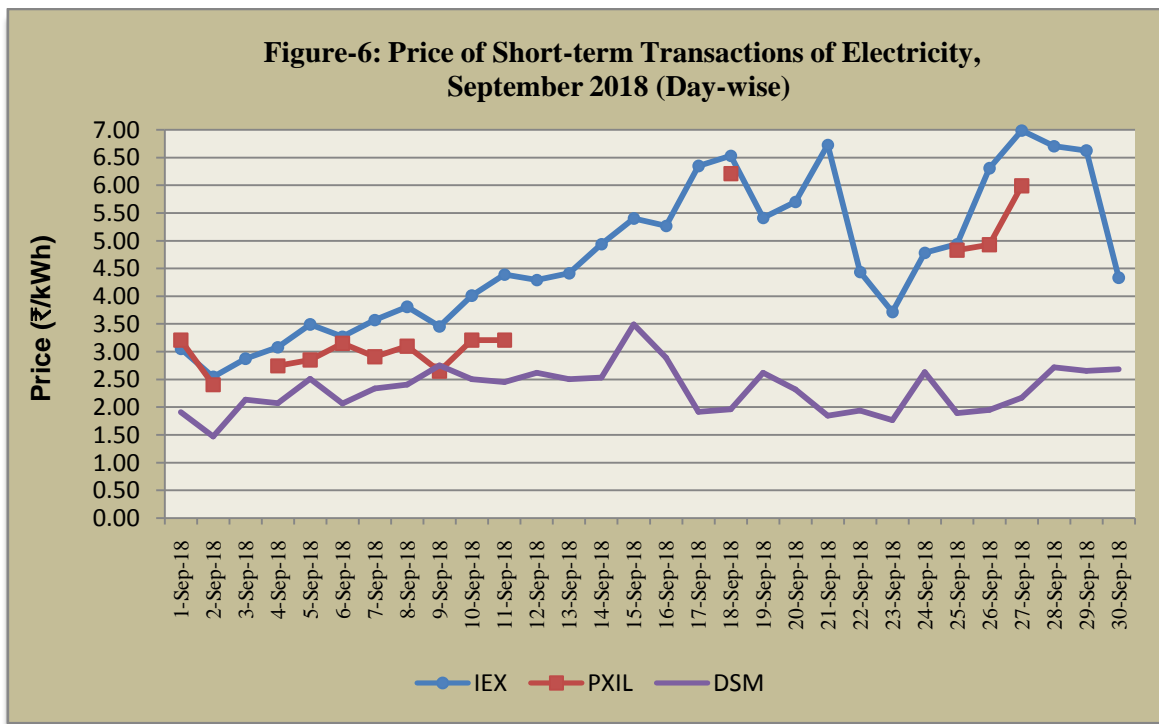
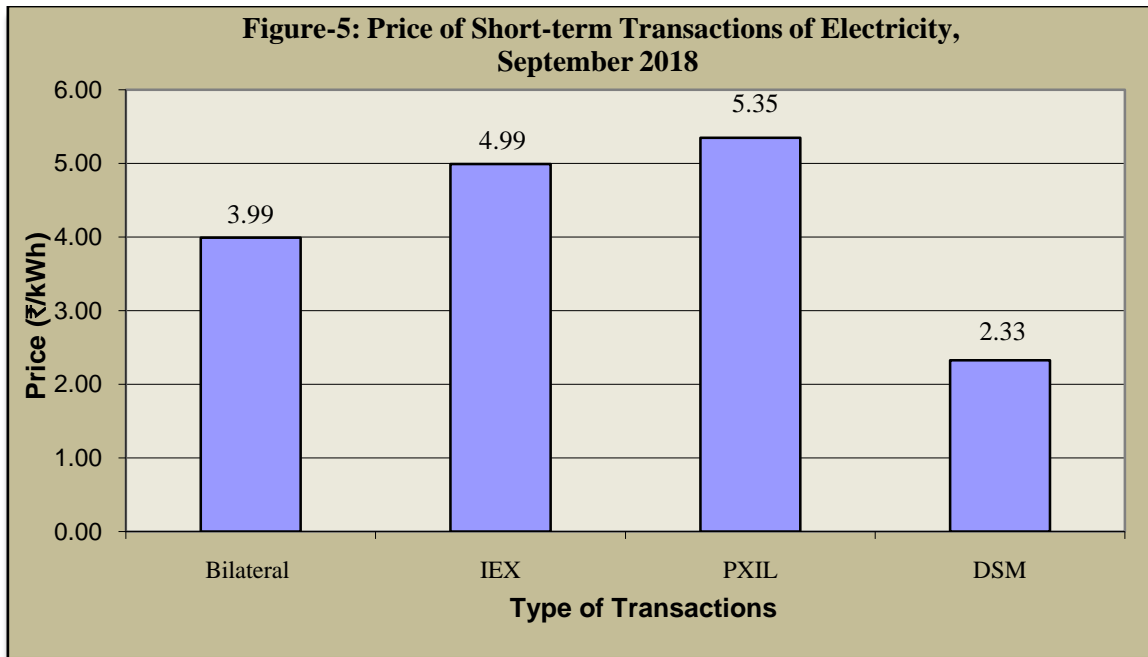
Source: IEX

Table-7: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF PXIL, SEPTEMBER 2018			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	40.16	6.04
2	Any Day(s) Contracts	16.80	5.65
	Total	56.96	5.93

Source: PXIL

Table-8: PRICE OF ELECTRICITY TRANSACTED THROUGH DSM, SEPTEMBER 2018		
Sr.No	Item	Price in All India Grid (₹/kWh)
1	Minimum	0.00
2	Maximum	8.24
3	Average	2.33

Source: NLDC



Note: During the month, no transactions were recorded in PXIL on 3rd, 12th – 17th, 19th – 24th, 28th – 30th September 2018.

Table-9: VOLUME OF ELECTRICITY SOLD THROUGH BILATERAL, SEPTEMBER 2018		
Name of the Entity	Volume of Sale (MUs)	% of Volume
MP	880.89	12.37
SEMBICORP	721.92	10.14
HIMACHAL PRADESH	664.02	9.32
J & K	495.81	6.96
DVC	433.97	6.09
ANDHRA PRADESH	406.87	5.71
ILF&S	337.57	4.74
JAYPEE NIGRIE	267.95	3.76
TAMIL NADU	223.66	3.14
UTTARAKHAND	195.30	2.74
WEST BENGAL	187.10	2.63
DB POWER	183.74	2.58
GUJARAT	161.96	2.27
ESSAR POWER	156.42	2.20
GMR CHATTISGARH	150.11	2.11
THERMAL POWERTECH	109.44	1.54
ODISHA	108.36	1.52
SHREE CEMENT	106.25	1.49
SKS POWER	102.52	1.44
ADHUNIK POWER LTD	97.95	1.38
HARYANA	90.77	1.27
DAGACHU	84.45	1.19
MAHARASHTRA	73.62	1.03
JITPL	68.05	0.96
RAJASTHAN	65.70	0.92
JORETHANG	60.19	0.85
TASHIDENG HEP	59.79	0.84
CHUZACHEN HEP	56.50	0.79
KERALA	53.68	0.75
JINDAL STAGE-II	52.99	0.74
MB POWER	50.38	0.71
TELANGANA	44.70	0.63
MEGHALAYA	38.04	0.53
KARNATAKA	37.91	0.53
ONGC PALATANA	37.90	0.53
GMR KAMALANGA	36.34	0.51
TEESTA STG3	34.92	0.49
SIKKIM	33.51	0.47
AD HYDRO	29.79	0.42
JHABUA POWER_MP	29.65	0.42
MANIPUR	25.75	0.36
MIZORAM	12.21	0.17
JINDAL POWER	10.57	0.15
LANCO_AMK	9.53	0.13
TRN ENERGY	8.82	0.12
DIKCHU HEP	7.14	0.10
NAGALAND	6.66	0.09
KARCHAM WANGTOO	5.11	0.07
DELHI	2.22	0.03
TOTAL	7121.17	100.00
Volume Sold by top 5 Regional Entities	3196.61	44.89

Table-10: VOLUME OF ELECTRICITY PURCHASED THROUGH BILATERAL, SEPTEMBER 2018		
Name of the Entity	Volume of Purchase (MUs)	% of Volume
UTTAR PRADESH	1287.98	18.11
PUNJAB	1181.79	16.61
HARYANA	1092.68	15.36
TELANGANA	458.70	6.45
DELHI	434.01	6.10
WEST BENGAL	325.94	4.58
BANGLADESH	324.76	4.57
UTTARAKHAND	265.42	3.73
CHHATTISGARH	245.66	3.45
ANDHRA PRADESH	232.51	3.27
BIHAR	227.00	3.19
GUJARAT	212.73	2.99
MAHARASHTRA	200.70	2.82
ESSAR STEEL	165.11	2.32
NEPAL(NVVN)	118.80	1.67
JHARKHAND	97.95	1.38
ODISHA	51.76	0.73
DADRA & NAGAR HAVELI	45.84	0.64
ASSAM	44.12	0.62
TAMIL NADU	39.43	0.55
GOA	26.50	0.37
DVC	15.27	0.21
MP	12.93	0.18
KARNATAKA	2.44	0.03
KERALA	1.42	0.02
RAJASTHAN	1.20	0.02
MEGHALAYA	0.44	0.01
TOTAL	7113.10	100.00
Volume Purchased by top 5 Regional Entities	4455.16	62.63

Table-11: VOLUME OF ELECTRICITY SOLD THROUGH POWER EXCHANGES, SEPTEMBER 2018		
Name of the Entity	Volume of Sale (MUs)	% of Volume
PUNJAB	738.23	12.86
DELHI	536.59	9.35
RAJASTHAN	449.39	7.83
TEESTA STG3	397.73	6.93
UTTAR PRADESH	346.79	6.04
HARYANA	271.69	4.73
MP	271.43	4.73
HIMACHAL PRADESH	264.62	4.61
GUJARAT	242.94	4.23
KARNATAKA	238.44	4.15
ESSAR POWER	162.50	2.83
ODISHA	98.82	1.72
MB POWER	93.88	1.64
SEMBCORP	92.01	1.60
JINDAL POWER	85.21	1.48
JAYPEE NIGRIE	84.54	1.47
MEGHALAYA	84.50	1.47
DB POWER	83.12	1.45
KARCHAM WANGTOO	66.69	1.16
SAINJ HEP	62.94	1.10
ANDHRA PRADESH	61.09	1.06
DIKCHU HEP	59.76	1.04
SHREE CEMENT	59.41	1.03
SPECTRUM	57.53	1.00
AD HYDRO	55.54	0.97
ACBIL	47.78	0.83
TELANGANA	46.29	0.81
MAHARASHTRA	45.90	0.80
UTTARAKHAND	45.89	0.80
JHARKHAND	42.36	0.74
SIKKIM	39.65	0.69
CHHATTISGARH	37.14	0.65
MARUTI COAL	36.83	0.64
TRIPURA	28.59	0.50
WEST BENGAL	27.31	0.48
KERALA	26.70	0.47
CHANDIGARH	25.82	0.45
JITPL	21.69	0.38
TRN ENERGY	21.68	0.38
TAMIL NADU	20.68	0.36
GMR CHATTISGARH	18.55	0.32
ASSAM	18.32	0.32
SKS POWER	17.88	0.31
NTPC STATIONS-NER	17.06	0.30
NLC	16.59	0.29
MIZORAM	16.53	0.29
THERMAL POWERTECH	15.86	0.28

J & K	15.05	0.26
ILF&S	13.67	0.24
JHABUA POWER_MP	13.17	0.23
GOA	12.40	0.22
GMR KAMALANGA	10.88	0.19
TASHIDENG HEP	8.88	0.15
ONGC PALATANA	8.63	0.15
JORETHANG	8.14	0.14
NTPC STATIONS-NR	7.80	0.14
CHUZACHEN HEP	7.09	0.12
MANIPUR	6.85	0.12
MALANA	5.84	0.10
LANCO BUDHIL	4.71	0.08
DVC	3.79	0.07
NAGALAND	3.71	0.06
NTPC STATIONS-WR	3.47	0.06
BRBCL,NABINAGAR	1.54	0.03
ADHUNIK POWER LTD	1.27	0.02
NTPC STATIONS-SR	0.84	0.01
JINDAL STAGE-II	0.71	0.01
DADRA & NAGAR HAVELI	0.67	0.01
BALCO	0.64	0.01
DHARIWAL POWER	0.14	0.00
TOTAL	5740.38	100.00
Volume sold by top 5 Regional Entities	2468.72	43.01

Table-12: VOLUME OF ELECTRICITY PURCHASED THROUGH POWER EXCHANGES, SEPTEMBER 2018		
Name of the Entity	Volume of Purchase (MUs)	% of Volume
MAHARASHTRA	1039.31	18.11
GUJARAT	914.85	15.94
WEST BENGAL	651.19	11.34
TAMIL NADU	543.31	9.46
BIHAR	529.53	9.22
ODISHA	361.91	6.30
TELANGANA	312.99	5.45
ANDHRA PRADESH	239.64	4.17
J & K	232.20	4.05
DVC	211.72	3.69
ASSAM	163.91	2.86
ESSAR STEEL	151.03	2.63
KARNATAKA	71.16	1.24
CHHATTISGARH	51.49	0.90
DADRA & NAGAR HAVELI	49.47	0.86
UTTARAKHAND	37.07	0.65
HARYANA	26.07	0.45
KERALA	25.86	0.45
HIMACHAL PRADESH	25.75	0.45
DAMAN AND DIU	21.07	0.37
RAJASTHAN	20.76	0.36
GOA	20.40	0.36
MEGHALAYA	14.71	0.26
MP	14.32	0.25
TRIPURA	4.31	0.08
DELHI	3.39	0.06
UTTAR PRADESH	2.12	0.04
CHANDIGARH	0.80	0.01
MANIPUR	0.06	0.00
TOTAL	5740.38	100.00
Volume purchased by top 5 Regional Entities	3678.19	64.08

Table-13: VOLUME OF ELECTRICITY UNDER DRAWAL (EXPORTED) THROUGH DSM, SEPTEMBER 2018		
Name of the Entity	Volume of Underdrawal (MUs)	% of Volume
KARNATAKA	238.42	15.09
NTPC STATIONS-WR	97.67	6.18
SEMBCORP	92.02	5.83
J & K	77.46	4.90
NTPC STATIONS-NR	74.69	4.73
ANDHRA PRADESH	61.10	3.87
NHPC STATIONS	61.06	3.87
UTTAR PRADESH	60.75	3.85
MAHARASHTRA	52.76	3.34
RAJASTHAN	49.54	3.14
TELANGANA	46.28	2.93
PUNJAB	44.12	2.79
HARYANA	37.89	2.40
MP	37.79	2.39
BIHAR	36.02	2.28
UTTARAKHAND	36.02	2.28
DELHI	34.42	2.18
GUJARAT	33.72	2.13
CHHATTISGARH	28.09	1.78
KERALA	26.70	1.69
ESSAR STEEL	23.62	1.50
CGPL	23.26	1.47
TAMIL NADU	20.72	1.31
NJPC	19.21	1.22
NLC	16.59	1.05
ILF&S	13.65	0.86
RGPL (DABHOL)	12.82	0.81
KARCHAM WANGTOO	12.38	0.78
ASSAM	12.14	0.77
ODISHA	12.01	0.76
BALCO	11.35	0.72
JINDAL STAGE-II	11.22	0.71
AD HYDRO	10.13	0.64
JHARKHAND	9.94	0.63
ARUNACHAL PRADESH	9.16	0.58
NEEPCO STATIONS	8.82	0.56
MB POWER	8.49	0.54
GMR CHATTISGARH	8.21	0.52
HIMACHAL PRADESH	8.14	0.52
CHANDIGARH	7.77	0.49
TRIPURA	7.40	0.47
MANIPUR	6.26	0.40
JHABUA POWER_MP	5.98	0.38
ACBIL	5.74	0.36
WEST BENGAL	5.73	0.36
MEGHALAYA	5.55	0.35

URI-2	4.99	0.32
GOA	4.77	0.30
RANGANADI HEP	4.16	0.26
LANCO BUDHIL	3.79	0.24
MIZORAM	3.39	0.21
NSPCL	3.27	0.21
EMCO	3.05	0.19
SIKKIM	2.89	0.18
JAYPEE NIGRIE	2.76	0.17
NAGALAND	2.74	0.17
DVC	2.44	0.15
JINDAL POWER	2.39	0.15
RKM POWER	2.09	0.13
ESSAR POWER	2.04	0.13
KSK MAHANADI	1.74	0.11
DB POWER	1.55	0.10
TRN ENERGY	1.46	0.09
MALANA	0.99	0.06
DGEN MEGA POWER	0.92	0.06
SKS POWER	0.85	0.05
SASAN UMPP	0.74	0.05
KORBA WEST POWER	0.65	0.04
LANKO_AMK	0.52	0.03
DADRA & NAGAR HAVELI	0.50	0.03
LOKTAK	0.50	0.03
SHREE CEMENT	0.48	0.03
DOYANG HEP	0.39	0.02
NTPC STATIONS-SR	0.35	0.02
DHARIWAL POWER	0.15	0.01
DAMAN AND DIU	0.14	0.01
TOTAL	1579.53	100.00
Volume Exported by top 5 Regional Entities	580.26	36.74

Table-14: VOLUME OF ELECTRICITY OVER DRAWAL (IMPORTED) THROUGH DSM, SEPTEMBER 2018		
Name of the Entity	Volume of Over drawal (MUs)	% of Volume
TAMIL NADU	543.33	19.42
TELANGANA	313.00	11.19
ANDHRA PRADESH	239.64	8.57
DVC	158.95	5.68
WEST BENGAL	113.01	4.04
RAJASTHAN	105.82	3.78
GUJARAT	91.93	3.29
ODISHA	89.04	3.18
UTTAR PRADESH	83.30	2.98
MAHARASHTRA	80.92	2.89
NTPC STATIONS-NR	72.33	2.59
KARNATAKA	71.15	2.54
MP	63.69	2.28
HARYANA	60.47	2.16
NTPC STATIONS-ER	55.80	1.99
BIHAR	54.54	1.95
HIMACHAL PRADESH	47.64	1.70
JHARKHAND	36.00	1.29
CHHATTISGARH	34.29	1.23
DADRA & NAGAR HAVELI	33.90	1.21
DAMAN AND DIU	33.76	1.21
PUNJAB	26.91	0.96
KERALA	25.89	0.93
ESSAR STEEL	23.62	0.84
DAGACHU	23.27	0.83
CGPL	23.26	0.83
ASSAM	22.40	0.80
J & K	22.03	0.79
UTTARAKHAND	16.74	0.60
DELHI	16.69	0.60
GMR KAMALANGA	15.49	0.55
RGPL (DABHOL)	12.82	0.46
NEPAL(NVVN)	11.99	0.43
BALCO	11.35	0.41
JINDAL STAGE-II	11.22	0.40
TRIPURA	10.32	0.37
CHANDIGARH	10.15	0.36
GOA	9.65	0.35
MB POWER	8.49	0.30
GMR CHATTISGARH	8.21	0.29
NAGALAND	6.51	0.23
LANCO BUDHIL	6.00	0.21
JHABUA POWER_MP	5.98	0.21
ACBIL	5.74	0.21
MEGHALAYA	5.46	0.20
SIKKIM	4.67	0.17

BANGLADESH	4.17	0.15
NHPC STATIONS	4.12	0.15
ARUNACHAL PRADESH	3.79	0.14
ADHUNIK POWER LTD	3.38	0.12
AD HYDRO	3.36	0.12
MAITHON POWER LTD	3.29	0.12
NSPCL	3.27	0.12
NJPC	3.09	0.11
EMCO	3.05	0.11
SHREE CEMENT	2.95	0.11
JAYPEE NIGRIE	2.76	0.10
MANIPUR	2.62	0.09
JINDAL POWER	2.39	0.09
CHUZACHEN HEP	2.32	0.08
MIZORAM	2.26	0.08
RKM POWER	2.09	0.07
ESSAR POWER	2.04	0.07
DIKCHU HEP	1.76	0.06
KSK MAHANADI	1.74	0.06
NEEPCO STATIONS	1.58	0.06
DB POWER	1.55	0.06
TRN ENERGY	1.46	0.05
JORETHANG	1.03	0.04
BRBCL,NABINAGAR	0.97	0.03
TEESTA HEP	0.96	0.03
DGEN MEGA POWER	0.92	0.03
JITPL	0.92	0.03
SKS POWER	0.85	0.03
SASAN UMPP	0.74	0.03
MALANA	0.65	0.02
KORBA WEST POWER	0.65	0.02
TASHIDENG HEP	0.59	0.02
LANKO_AMK	0.52	0.02
KARCHAM WANGTOO	0.49	0.02
LOKTAK	0.48	0.02
RANGANADI HEP	0.41	0.01
URI-2	0.38	0.01
DOYANG HEP	0.26	0.01
DHARIWAL POWER	0.15	0.01
RANGIT HEP	0.04	0.00
TOTAL	2797.39	100.00
Volume Imported by top 5 Regional Entities	1367.92	48.90

Table-15: TOTAL VOLUME OF NET SHORT-TERM TRANSACTIONS OF ELECTRICITY (REGIONAL ENTITY-WISE), SEPTEMBER 2018		
Sr.No.	Name of the Entity	Total volume of net short-term transactions of electricity*
1	MAHARASHTRA	1148.64
2	UTTAR PRADESH	965.75
3	TELANGANA	947.42
4	WEST BENGAL	870.00
5	TAMIL NADU	861.00
6	GUJARAT	780.88
7	HARYANA	778.87
8	BIHAR	775.05
9	PUNJAB	426.35
10	BANGLADESH	328.93
11	ESSAR STEEL	315.83
12	ODISHA	283.51
13	CHHATTISGARH	265.67
14	ASSAM	199.97
15	ANDHRA PRADESH	182.73
16	NEPAL(NVVN)	130.79
17	DADRA & NAGAR HAVELI	128.04
18	JHARKHAND	81.29
19	NTPC STATIONS-ER	55.80
20	DAMAN AND DIU	54.68
21	UTTARAKHAND	42.03
22	GOA	39.39
23	MAITHON POWER LTD	3.29
24	TEESTA HEP	0.96
25	RANGIT HEP	0.04
26	LOKTAK	-0.02
27	DOYANG HEP	-0.13
28	DHARIWAL POWER	-0.14
29	BRBCL,NABINAGAR	-0.58
30	BALCO	-0.68
31	NTPC STATIONS-SR	-1.19
32	LANCO BUDHIL	-2.50
33	RANGANADI HEP	-3.75
34	URI-2	-4.61
35	ARUNACHAL PRADESH	-5.38
36	MALANA	-6.36
37	NAGALAND	-6.60
38	NEEPCO STATIONS	-7.25
39	LANKO_AMK	-9.53
40	NTPC STATIONS-NR	-10.16
41	NJPC	-16.12
42	NTPC STATIONS-NER	-17.06
43	TRIPURA	-21.60
44	CHANDIGARH	-22.64
45	MIZORAM	-29.88
46	TRN ENERGY	-30.50
47	GMR KAMALANGA	-31.72
48	NLC	-33.18
49	MANIPUR	-36.18
50	MARUTI COAL	-36.83

51	JHABUA POWER_MP	-42.82
52	ONGC PALATANA	-46.53
53	ACBIL	-48.51
54	JINDAL STAGE-II	-53.70
55	KERALA	-53.91
56	DVC	-54.26
57	NHPC STATIONS	-56.93
58	SPECTRUM	-57.53
59	DAGACHU	-61.18
60	CHUZACHEN HEP	-61.27
61	SAINJ HEP	-62.94
62	DIKCHU HEP	-65.13
63	JORETHANG	-67.30
64	TASHIDENG HEP	-68.07
65	SIKKIM	-71.38
66	KARCHAM WANGTOO	-83.69
67	JITPL	-88.82
68	AD HYDRO	-92.10
69	JINDAL POWER	-95.77
70	ADHUNIK POWER LTD	-95.84
71	NTPC STATIONS-WR	-101.13
72	MEGHALAYA	-107.48
73	DELHI	-119.14
74	SKS POWER	-120.40
75	THERMAL POWERTECH	-125.30
76	MB POWER	-144.26
77	SHREE CEMENT	-163.18
78	GMR CHATTISGARH	-168.67
79	DB POWER	-266.86
80	ESSAR POWER	-318.92
81	J & K	-334.09
82	JAYPEE NIGRIE	-352.48
83	ILF&S	-364.89
84	KARNATAKA	-370.02
85	TEESTA STG3	-432.64
86	RAJASTHAN	-436.84
87	HIMACHAL PRADESH	-863.39
88	SEMBCORP	-905.95
89	MP	-1099.17
* 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 2018			
	Details of Congestion	IEX	PXIL
A	Unconstrained Cleared Volume* (MUs)	5730.22	15.76
B	Actual Cleared Volume and hence scheduled (MUs)	5725.49	15.76
C	Volume of electricity that could not be cleared and hence not scheduled because of congestion (MUs) (A-B)	4.74	0.00
D	Volume of electricity that could not be cleared as % to Unconstrained Cleared Volume	0.08%	0.00%
E	Percentage of the time congestion occurred during the month (Number of hours congestion occurred/Total number of hours in the month)	0.87%	0.00%
F	Congestion occurrence (%) time block wise		
	0.00 - 6.00 hours	0.00%	0.00%
	6.00 - 12.00 hours	48.00%	0.00%
	12.00 - 18.00 hours	44.00%	0.00%
	18.00 - 24.00 hours	8.00%	0.00%
<i>* This power would have been scheduled had there been no congestion.</i>			
<i>Source: IEX & PXIL & NLDC</i>			

Table-17: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY IN INDIA (DAY-WISE) (MUs), SEPTEMBER 2018						
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-18	207.98	47.64	124.11	0.16	84.33	3450.64
2-Sep-18	204.27	36.85	108.70	0.21	92.74	3258.94
3-Sep-18	196.54	39.40	115.49	0.00	93.61	3313.82
4-Sep-18	195.04	39.09	117.35	0.17	83.08	3395.76
5-Sep-18	198.20	37.68	134.87	0.13	89.50	3411.93
6-Sep-18	199.88	37.74	124.38	0.11	84.34	3411.93
7-Sep-18	187.84	43.73	119.35	0.04	90.24	3443.17
8-Sep-18	186.12	42.96	145.63	0.14	96.46	3487.48
9-Sep-18	191.40	44.13	158.38	0.10	101.86	3534.13
10-Sep-18	197.06	44.93	196.14	0.15	106.51	3686.76
11-Sep-18	185.44	45.46	215.31	0.15	121.66	3747.89
12-Sep-18	180.76	47.45	204.92	0.00	131.71	3719.30
13-Sep-18	190.45	47.71	195.07	0.00	130.32	3673.75
14-Sep-18	179.22	44.09	191.19	0.00	113.91	3820.46
15-Sep-18	183.85	43.13	193.84	0.00	87.36	3863.61
16-Sep-18	178.87	49.49	194.22	0.00	92.11	3800.33
17-Sep-18	178.60	65.47	178.80	0.00	99.97	3796.81
18-Sep-18	183.53	61.25	184.53	3.60	103.27	3795.97
19-Sep-18	184.62	63.33	190.84	0.00	108.81	3829.18
20-Sep-18	191.68	63.22	197.36	0.00	94.06	3815.72
21-Sep-18	175.12	62.44	177.85	0.00	100.72	3622.64
22-Sep-18	174.69	62.38	179.01	0.00	109.64	3379.59
23-Sep-18	175.43	61.61	174.39	0.00	126.55	3318.42
24-Sep-18	179.23	62.53	208.64	0.00	123.65	3488.93
25-Sep-18	176.47	63.26	268.25	3.60	120.79	3566.06
26-Sep-18	175.47	62.22	264.86	2.40	114.78	3634.07
27-Sep-18	180.55	62.89	290.29	4.80	117.69	3671.88
28-Sep-18	171.24	63.31	292.91	0.00	117.74	3724.60
29-Sep-18	168.96	59.02	306.10	0.00	120.55	3733.58
30-Sep-18	166.82	63.38	271.85	0.00	132.59	3648.52
Total	5545.32	1567.78	5724.63	15.76	3190.56	108045.87
<i>Source: NLDC</i>						
<i>* Gross Electricity Generation excluding electricity generation from renewables and captive power plants.</i>						
<i>** The volume of bilateral through PXs represents the volume through term-ahead contracts.</i>						
<i># Area Clearing Volume represents the scheduled volume of all the bid areas.</i>						

Table-18: PRICE OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (DAY-WISE)(₹/kWh), SEPTEMBER 2018									
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-18	1.81	7.92	3.05	3.21	3.21	3.21	0.00	3.45	1.91
2-Sep-18	1.75	4.14	2.55	2.41	2.41	2.41	0.00	3.03	1.47
3-Sep-18	2.00	5.37	2.87	-	-	-	0.36	5.32	2.14
4-Sep-18	2.35	5.41	3.08	2.50	2.90	2.75	0.00	5.95	2.08
5-Sep-18	2.68	8.15	3.49	2.85	2.85	2.85	0.00	6.36	2.51
6-Sep-18	2.44	7.58	3.27	3.15	3.15	3.15	0.36	4.91	2.07
7-Sep-18	2.45	8.20	3.58	2.91	2.91	2.91	0.36	6.36	2.34
8-Sep-18	2.82	8.51	3.81	3.10	3.10	3.10	0.36	6.16	2.41
9-Sep-18	2.34	7.92	3.46	2.65	2.65	2.65	0.71	5.95	2.76
10-Sep-18	2.72	9.11	4.01	3.21	3.21	3.21	0.36	6.36	2.51
11-Sep-18	2.95	9.64	4.40	3.21	3.21	3.21	0.00	7.82	2.46
12-Sep-18	2.92	9.50	4.30	-	-	-	0.00	6.16	2.62
13-Sep-18	3.04	9.50	4.42	-	-	-	0.00	6.36	2.50
14-Sep-18	3.20	10.26	4.94	-	-	-	0.00	6.36	2.54
15-Sep-18	3.62	11.06	5.40	-	-	-	0.71	8.03	3.49
16-Sep-18	3.44	11.92	5.27	-	-	-	0.00	6.16	2.89
17-Sep-18	3.99	12.95	6.35	-	-	-	0.00	5.11	1.92
18-Sep-18	3.40	14.08	6.54	6.21	6.21	6.21	0.00	5.11	1.97
19-Sep-18	2.90	9.50	5.42	-	-	-	0.36	6.36	2.62
20-Sep-18	3.70	9.50	5.70	-	-	-	0.00	6.36	2.32
21-Sep-18	4.09	11.00	6.73	-	-	-	0.00	3.45	1.85
22-Sep-18	3.11	6.62	4.44	-	-	-	0.00	5.32	1.94
23-Sep-18	2.79	7.00	3.72	-	-	-	0.00	3.45	1.77
24-Sep-18	3.11	9.50	4.79	-	-	-	0.00	8.24	2.64
25-Sep-18	2.97	9.91	4.94	4.83	4.83	4.83	0.00	5.11	1.89
26-Sep-18	3.50	12.15	6.31	4.93	4.93	4.93	0.00	4.91	1.95
27-Sep-18	3.91	14.25	6.99	5.99	5.99	5.99	0.00	5.95	2.17
28-Sep-18	3.49	15.37	6.71	-	-	-	0.00	7.82	2.72
29-Sep-18	3.50	16.49	6.63	-	-	-	0.00	8.24	2.66
30-Sep-18	2.86	9.50	4.33	-	-	-	0.71	5.32	2.68
	1.75#	16.49#	4.99	2.41#	6.21#	5.35	0.00#	8.24#	2.33
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 2018										
Name of the Entity	Through Bilateral			Through Power Exchange			Through DSM with Regional Grid			Total Net***
	Sale	Purchase	Net**	Sale	Purchase	Net**	Import (Over Drawl)	Export (Under Drawl)	Net**	
PUNJAB	0.00	1181.79	1181.79	738.23	0.00	-738.23	26.91	44.12	-17.21	426.35
HARYANA	90.77	1092.68	1001.91	271.69	26.07	-245.63	60.47	37.89	22.58	778.87
RAJASTHAN	65.70	1.20	-64.50	449.39	20.76	-428.63	105.82	49.54	56.28	-436.84
DELHI	2.22	434.01	431.79	536.59	3.39	-533.20	16.69	34.42	-17.73	-119.14
UTTAR PRADESH	0.10	1287.98	1287.88	346.79	2.12	-344.67	83.30	60.75	22.54	965.75
UTTARAKHAND	195.30	265.42	70.13	45.89	37.07	-8.82	16.74	36.02	-19.28	42.03
HP	664.02	0.00	-664.02	264.62	25.75	-238.87	47.64	8.14	39.50	-863.39
J & K	495.81	0.00	-495.81	15.05	232.20	217.15	22.03	77.46	-55.43	-334.09
CHANDIGARH	0.00	0.00	0.00	25.82	0.80	-25.02	10.15	7.77	2.38	-22.64
MP	880.89	12.93	-867.96	271.43	14.32	-257.10	63.69	37.79	25.90	-1099.17
MAHARASHTRA	73.62	200.70	127.08	45.90	1039.31	993.41	80.92	52.76	28.16	1148.64
GUJARAT	161.96	212.73	50.77	242.94	914.85	671.91	91.93	33.72	58.21	780.88
CHHATTISGARH	0.53	245.66	245.13	37.14	51.49	14.35	34.29	28.09	6.20	265.67
GOA	0.00	26.50	26.50	12.40	20.40	8.00	9.65	4.77	4.88	39.39
DAMAN AND DIU	0.00	0.00	0.00	0.00	21.07	21.07	33.76	0.14	33.61	54.68
D&N HAVELI	0.00	45.84	45.84	0.67	49.47	48.80	33.90	0.50	33.40	128.04
AP	406.87	232.51	-174.36	61.09	239.64	178.55	239.64	61.10	178.54	182.73
KARNATAKA	37.91	2.44	-35.47	238.44	71.16	-167.28	71.15	238.42	-167.27	-370.02
KERALA	53.68	1.42	-52.26	26.70	25.86	-0.84	25.89	26.70	-0.81	-53.91
TAMIL NADU	223.66	39.43	-184.23	20.68	543.31	522.62	543.33	20.72	522.61	861.00
PONDICHERRY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TELANGANA	44.70	458.70	414.00	46.29	312.99	266.70	313.00	46.28	266.72	947.42
WEST BENGAL	187.10	325.94	138.84	27.31	651.19	623.88	113.01	5.73	107.27	870.00
ODISHA	108.36	51.76	-56.60	98.82	361.91	263.08	89.04	12.01	77.03	283.51
BIHAR	0.00	227.00	227.00	0.00	529.53	529.53	54.54	36.02	18.52	775.05
JHARKHAND	0.36	97.95	97.59	42.36	0.00	-42.36	36.00	9.94	26.06	81.29
SIKKIM	33.51	0.00	-33.51	39.65	0.00	-39.65	4.67	2.89	1.78	-71.38
DVC	433.97	15.27	-418.70	3.79	211.72	207.93	158.95	2.44	156.50	-54.26
ARUNACHAL P	0.00	0.00	0.00	0.00	0.00	0.00	3.79	9.16	-5.38	-5.38
ASSAM	0.00	44.12	44.12	18.32	163.91	145.59	22.40	12.14	10.26	199.97
MANIPUR	25.75	0.00	-25.75	6.85	0.06	-6.79	2.62	6.26	-3.64	-36.18
MEGHALAYA	38.04	0.44	-37.60	84.50	14.71	-69.79	5.46	5.55	-0.09	-107.48
MIZORAM	12.21	0.00	-12.21	16.53	0.00	-16.53	2.26	3.39	-1.13	-29.88
NAGALAND	6.66	0.00	-6.66	3.71	0.00	-3.71	6.51	2.74	3.77	-6.60
TRIPURA	0.24	0.00	-0.24	28.59	4.31	-24.29	10.32	7.40	2.92	-21.60
NTPC -NR	0.00	0.00	0.00	7.80	0.00	-7.80	72.33	74.69	-2.36	-10.16
NHPC STATIONS	0.00	0.00	0.00	0.00	0.00	0.00	4.12	61.06	-56.93	-56.93
NJPC	0.00	0.00	0.00	0.00	0.00	0.00	3.09	19.21	-16.12	-16.12
AD HYDRO	29.79	0.00	-29.79	55.54	0.00	-55.54	3.36	10.13	-6.77	-92.10
KARCHAM WANGT	5.11	0.00	-5.11	66.69	0.00	-66.69	0.49	12.38	-11.89	-83.69
SHREE CEMENT	106.25	0.00	-106.25	59.41	0.00	-59.41	2.95	0.48	2.47	-163.18
LANCO BUDHIL	0.00	0.00	0.00	4.71	0.00	-4.71	6.00	3.79	2.21	-2.50
ADANI HVDC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MALANA	0.18	0.00	-0.18	5.84	0.00	-5.84	0.65	0.99	-0.34	-6.36
URI-2	0.00	0.00	0.00	0.00	0.00	0.00	0.38	4.99	-4.61	-4.61
SAINJ HEP	0.00	0.00	0.00	62.94	0.00	-62.94	0.00	0.00	0.00	-62.94
KISHAN GANGA	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	3.47	0.00	-3.47	0.00	97.67	-97.67	-101.13
JINDAL POWER	10.57	0.00	-10.57	85.21	0.00	-85.21	2.39	2.39	0.00	-95.77
LANCO_AMK	9.53	0.00	-9.53	0.00	0.00	0.00	0.52	0.52	0.00	-9.53
NSPCL	0.00	0.00	0.00	0.00	0.00	0.00	3.27	3.27	0.00	0.00
ACBIL	0.74	0.00	-0.74	47.78	0.00	-47.78	5.74	5.74	0.00	-48.51
BALCO	0.04	0.00	-0.04	0.64	0.00	-0.64	11.35	11.35	0.00	-0.68
RGPL (DABHOL)	0.00	0.00	0.00	0.00	0.00	0.00	12.82	12.82	0.00	0.00
CGPL	0.00	0.00	0.00	0.00	0.00	0.00	23.26	23.26	0.00	0.00

DCPP	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EMCO	0.00	0.00	0.00	0.00	0.00	0.00	3.05	3.05	0.00	0.00
VANDANA VIDYUT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ESSAR STEEL	0.32	165.11	164.80	0.00	151.03	151.03	23.62	23.62	0.00	315.83
KSK MAHANADI	0.00	0.00	0.00	0.00	0.00	0.00	1.74	1.74	0.00	0.00
ESSAR POWER	156.42	0.00	-156.42	162.50	0.00	-162.50	2.04	2.04	0.00	-318.92
JINDAL STAGE-II	52.99	0.00	-52.99	0.71	0.00	-0.71	11.22	11.22	0.00	-53.70
DB POWER	183.74	0.00	-183.74	83.12	0.00	-83.12	1.55	1.55	0.00	-266.86
DHARIWAL POWER	0.00	0.00	0.00	0.14	0.00	-0.14	0.15	0.15	0.00	-0.14
JAYPEE NIGRIE	267.95	0.00	-267.95	84.54	0.00	-84.54	2.76	2.76	0.00	-352.48
DGEN MEGA POW	0.00	0.00	0.00	0.00	0.00	0.00	0.92	0.92	0.00	0.00
GMR CHATTISGAR	150.11	0.00	-150.11	18.55	0.00	-18.55	8.21	8.21	0.00	-168.67
KORBA WEST POW	0.00	0.00	0.00	0.00	0.00	0.00	0.65	0.65	0.00	0.00
MB POWER	50.38	0.00	-50.38	93.88	0.00	-93.88	8.49	8.49	0.00	-144.26
MARUTI COAL	0.00	0.00	0.00	36.83	0.00	-36.83	0.00	0.00	0.00	-36.83
SPECTRUM	0.00	0.00	0.00	57.53	0.00	-57.53	0.00	0.00	0.00	-57.53
JHABUA POWER_N	29.65	0.00	-29.65	13.17	0.00	-13.17	5.98	5.98	0.00	-42.82
SASAN UMPP	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.74	0.00	0.00
TRN ENERGY	8.82	0.00	-8.82	21.68	0.00	-21.68	1.46	1.46	0.00	-30.50
RKM POWER	0.00	0.00	0.00	0.00	0.00	0.00	2.09	2.09	0.00	0.00
SKS POWER	102.52	0.00	-102.52	17.88	0.00	-17.88	0.85	0.85	0.00	-120.40
NTPC -SR	0.00	0.00	0.00	0.84	0.00	-0.84	0.00	0.35	-0.35	-1.19
LANCO KONDAPAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SIMHAPURI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MEENAKSHI	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
COASTGEN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
THERMAL POWER	109.44	0.00	-109.44	15.86	0.00	-15.86	0.00	0.00	0.00	-125.30
ILF&S	337.57	0.00	-337.57	13.67	0.00	-13.67	0.00	13.65	-13.65	-364.89
NLC	0.00	0.00	0.00	16.59	0.00	-16.59	0.00	16.59	-16.59	-33.18
SEMBCORP	721.92	0.00	-721.92	92.01	0.00	-92.01	0.00	92.02	-92.02	-905.95
NETCL VALLUR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NTPC -ER	0.00	0.00	0.00	0.00	0.00	0.00	55.80	0.00	55.80	55.80
STERLITE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MAITHON POWER	0.00	0.00	0.00	0.00	0.00	0.00	3.29	0.00	3.29	3.29
ADHUNIK POWER	97.95	0.00	-97.95	1.27	0.00	-1.27	3.38	0.00	3.38	-95.84
CHUZACHEN HEP	56.50	0.00	-56.50	7.09	0.00	-7.09	2.32	0.00	2.32	-61.27
RANGIT HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.04	0.04
GMR KAMALANGA	36.34	0.00	-36.34	10.88	0.00	-10.88	15.49	0.00	15.49	-31.72
JITPL	68.05	0.00	-68.05	21.69	0.00	-21.69	0.92	0.00	0.92	-88.82
TEESTA HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.96	0.00	0.96	0.96
DAGACHU	84.45	0.00	-84.45	0.00	0.00	0.00	23.27	0.00	23.27	-61.18
JORETHANG	60.19	0.00	-60.19	8.14	0.00	-8.14	1.03	0.00	1.03	-67.30
NEPAL(NVVN)	0.00	118.80	118.80	0.00	0.00	0.00	11.99	0.00	11.99	130.79
BANGLADESH	0.00	324.76	324.76	0.00	0.00	0.00	4.17	0.00	4.17	328.93
TEESTA STG3	34.92	0.00	-34.92	397.73	0.00	-397.73	0.00	0.00	0.00	-432.64
DIKCHU HEP	7.14	0.00	-7.14	59.76	0.00	-59.76	1.76	0.00	1.76	-65.13
TASHIDENG HEP	59.79	0.00	-59.79	8.88	0.00	-8.88	0.59	0.00	0.59	-68.07
BRBCL,NABINAGR	0.00	0.00	0.00	1.54	0.00	-1.54	0.97	0.00	0.97	-0.58
NTPC-NER	0.00	0.00	0.00	17.06	0.00	-17.06	0.00	0.00	0.00	-17.06
NEEPCO STATION	0.00	0.00	0.00	0.00	0.00	0.00	1.58	8.82	-7.25	-7.25
RANGANADI HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.41	4.16	-3.75	-3.75
DOYANG HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.39	-0.13	-0.13
ONGC PALATANA	37.90	0.00	-37.90	8.63	0.00	-8.63	0.00	0.00	0.00	-46.53
LOKTAK	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.50	-0.02	-0.02

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 September, 2018

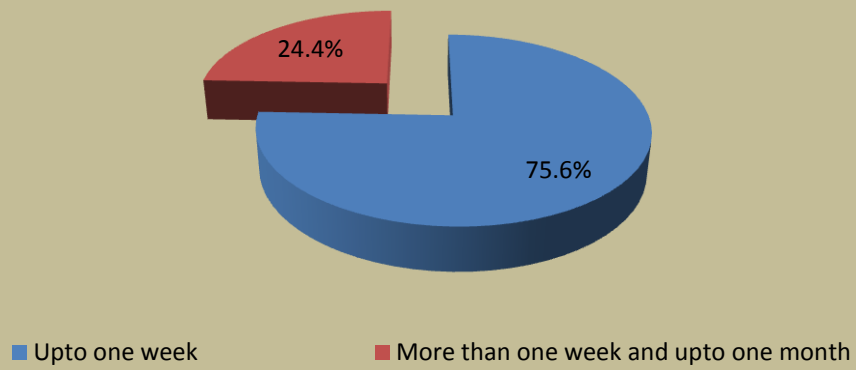


Figure-8: Forward Curve based on Prices of Bilateral Contracts

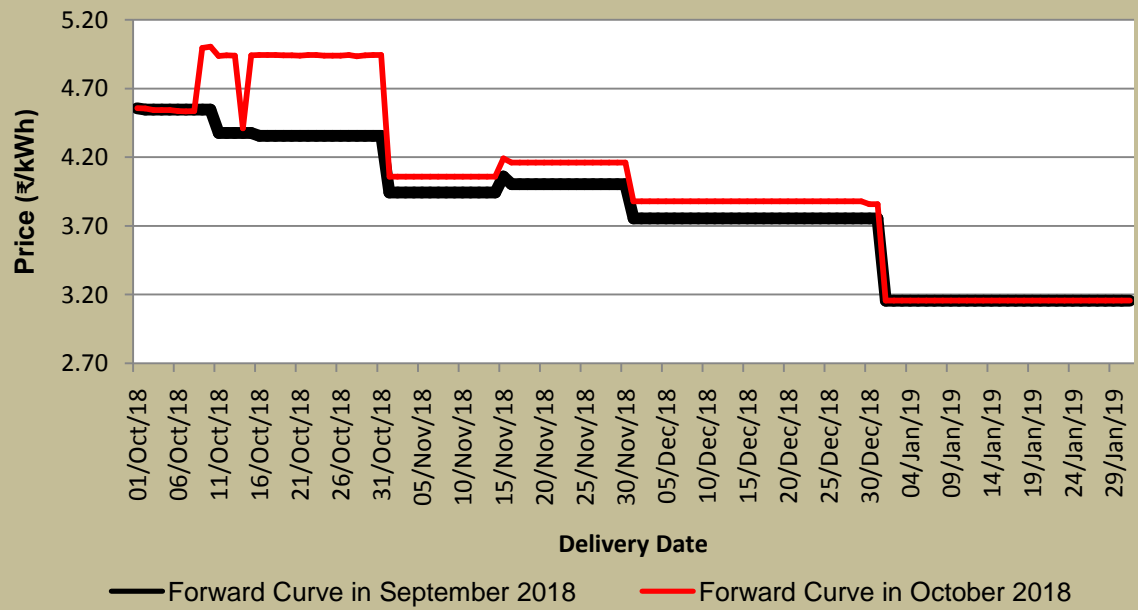


Table-20 : VOLUME AND PRICE OF RENEWABLE ENERGY CERTIFICATES (RECs) TRANSACTED THROUGH POWER EXCHANGES, SEPTEMBER 2018					
Sr.No.	Details of REC Transactions	IEX		PXIL	
		Solar	Non-Solar	Solar	Non Solar
A	Volume of Buy Bid	2156459	501255	199017	286601
B	Volume of Sell Bid	1461202	486175	538079	106833
C	Ratio of Buy Bid to Sell Bid Volume	1.48	1.03	0.37	2.68
D	Market Clearing Volume (MWh)	1359045	244401	199017	101175
E	Weighted average Market Clearing Price (₹/MWh)	1000	1100	1000	1300

Source: IEX and PXIL

Note 1: 1 REC = 1 MWh

Note 2:	Forbearance and Floor Price w.e.f 1st April 2017	
	Type of REC	Floor Price (₹/MWh)
	<i>Solar</i>	<i>2500.00</i>
	<i>Non-Solar</i>	<i>2900.00</i>