

Monthly Report on Short-term Transactions of Electricity in India

July, 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 **July, 2018** are as under:

I: Volume of Short-term Transactions of Electricity

During July 2018, total electricity generation excluding generation from renewable and captive power plants in India was 102417.48 MUs (Table-1).

Of the total electricity generation, 13229.02 MUs (12.92%) was transacted through short-term, comprising of 7280.93 MUs (7.11%) through bilateral (through traders and term-ahead contracts on power exchanges and directly between distribution companies), followed by 4054.24 MUs (3.96%) through day ahead collective transactions on power exchanges and 1893.85 MUs (1.85%) through DSM (Table-1 & Figure-2).

Of the total short-term transactions, bilateral constitutes 55.04% (43.96% through traders and term-ahead contracts on power exchanges and 11.08% directly between distribution companies) followed by 30.65% through day ahead collective transactions on power exchanges and 14.32% through DSM (Table-1 & Figure-1). Daily volume of short-term transactions is shown in Table-17 & Figure-3.

The percentage share of electricity traded by each trading licensee in the total volume of electricity traded by all the trading licensees is provided in Table-2 & Figure-4. The volume of electricity transacted by the trading licensees includes bilateral transactions and the transactions undertaken through power exchanges. There were 36 trading licensees as on July, 2018. In July, 2018, 23 trading licensees were engaged in short term trading. Top 5 trading licensees had a share of 83.51% in the total volume traded by all the licensees. These are PTC India Ltd., Arunachal Pradesh Power Corporation (P) Ltd., Manikaran Power Ltd., NTPC Vidyut Vyapar Nigam Ltd. and Mittal Processors (P) 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 0.2584 for the month of July, 2018, which indicates high concentration of market power (Table-2).

The volume of electricity transacted through IEX and PXIL in the day ahead market was 4027.79 MUs and 26.45 MUs respectively. The volume of total buy bids and sell bids was 4981.17 MUs and 7337.04 MUs respectively in IEX while the same was 30.67 MUs and 73.13 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 120.64 MUs and 11.98 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 ₹2.82/kWh, ₹6.50/kWh and ₹4.08/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 ₹4.10/kWh, ₹0.00/kWh and ₹3.98/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 ₹1.79/kWh, ₹9.70/kWh and ₹3.59/kWh respectively in IEX and ₹0.35/kWh, ₹5.95/kWh and ₹3.75/kWh respectively in PXIL (Table-5).

The price of electricity transacted through IEX and PXIL in the term-ahead market was ₹4.05/kWh and ₹5.62/kWh respectively (Table-6 and Table-7).

(iii) Price of electricity transacted through DSM: The average deviation settlement price was ₹2.05/kWh. The minimum and maximum deviation settlement prices were ₹0.00/kWh and ₹7.20/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 55.08% of the volume, and these were Himachal Pradesh, Madhya Pradesh, Jammu & Kashmir, Andhra Pradesh and Sembcorp Gayatri Power Ltd. Top 5 regional entities purchased 76.16% of the volume, and these were Punjab, Uttar Pradesh, Haryana, Delhi and Maharashtra (Table-9& 10).

Of the total power exchange transactions, top 5 regional entities sold 37.78% of the volume, and these were Teesta Stage 3 Hydro Power Project, Damodar Valley Corporation, Maharashtra, Rajasthan and Neyveli Lignite Corporation Limited. Top 5 regional entities purchased 52.42% of the volume, and these were Bihar, West Bengal, Gujarat, Telangana and Jammu & Kashmir (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 26.50% of the volume, and these were Maharashtra, Tamil Nadu, NTPC Stations (Western region), Karnataka and Jammu & Kashmir (Table-13). Top 5 regional entities overdrew 28.86% of the volume, and these were Odisha, Rajasthan, Uttar Pradesh, West Bengal and NTPC Stations (Northern region) (Table-14).

Regional entity-wise total volume of net short-term transactions of electricity i.e. volume of net transactions through bilateral, power exchanges and DSM is shown in Table-15 & 19. Top 5 electricity selling regional entities were Himachal Pradesh, Madhya Pradesh, Sembcorp Gayatri Power Ltd., Jammu & Kashmir and Andhra Pradesh. Top 5 electricity purchasing regional entities were Punjab, Uttar Pradesh, Haryana, Bihar and Delhi.

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

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

In the month of July 2018, congestion occurred in IEX and 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

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.

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

During the month, the volume of electricity that could not be cleared in IEX and PXIL due to congestion was 0.17% and 9.63% respectively of the unconstrained cleared volume. In terms of time, congestion occurred was 6.52% and 5.58% in IEX and PXIL respectively (Table-16).

V: Bilateral Contracts executed by Traders

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

(i) Duration of bilateral contracts: During August 2018, a total of 81 bilateral contracts (excluding banking/swap contracts) have been executed by traders for the volume of 2219.70 MUs. Figure-7 shows the percentage of contracts categorized according to the period of power supply. It can be observed from the figure that 77.8% of the bilateral contracts were executed for duration of up to one week, 22.2% 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, 98 banking/swapping bilateral contracts were also executed for the volume of 772.33 MUs.

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

Figure-8 represents the forward curve of electricity sale prices for the period from 1st August, 2018 to 29th November, 2018 based on the bilateral contracts⁴ executed till

⁴Excluding Banking/Swapping contracts

August, 2018. Forward curves have been drawn for the contracts executed in July, 2018 and August, 2018 for the purpose of comparison. It is observed that forward contract prices are significantly higher for the contracts executed in August, 2018 compared to the contracts executed in July, 2018 during the period from 1st October 2018 to 29th November 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 July, 2018 are shown in Table-20. The market clearing volume of solar RECs transacted on IEX and PXIL were 808324 and 574308 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 191988 and 43449 respectively and the weighted average market clearing price of these RECs was ₹1200/MWh in IEX and ₹1050/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 0.36 and 0.40 for IEX and PXIL respectively. For non-solar RECs, the ratio of buy bids to sell bids was 2.47 and 5.68 for IEX and PXIL respectively.

VII: Inferences:

- The percentage of short-term transactions of electricity to total electricity generation was 12.92%.
- Of the total short-term transactions, bilateral constitutes 55.04% (43.96% through traders and term-ahead contracts on power exchanges and 11.08% directly between distribution companies) followed by 30.65% through day ahead collective transactions on power exchanges and 14.32% through DSM (Table-1 & Figure-1).
- Top 5 trading licensees had a share of 83.51% 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 0.2584, indicating high concentration of market power.
- The weighted average price of electricity transacted through trading licensees was ₹4.08/kWh. The weighted average price of electricity transacted through IEX and PXIL was ₹3.59/kWh and ₹3.75/kWh respectively.
- The average price of electricity transacted through DSM was ₹2.05/kWh.
- Top 5 electricity selling regional entities were Himachal Pradesh, Madhya Pradesh, Sembcorp Gayatri Power Ltd., Jammu & Kashmir and Andhra Pradesh. Top 5 electricity purchasing regional entities were Punjab, Uttar Pradesh, Haryana, Bihar and Delhi.
- During the month, the volume of electricity that could not be cleared in IEX and PXIL due to congestion was 0.17% and 9.63% respectively of the unconstrained cleared volume. In terms of time, congestion occurred was 6.52% and 5.58% in IEX and PXIL respectively.
- In August 2018, 77.8% of the bilateral contracts were executed for duration of up to one week, 22.2% 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 August, 2018 to 29th November, 2018 based on the bilateral contracts⁵ executed till August, 2018 shows that forward contract prices are significantly higher for the contracts executed in August, 2018 compared to the contracts executed in July, 2018 during the period from 1st October 2018 to 29th November 2018.
- The market clearing volume of solar RECs transacted on IEX and PXIL were 808324 and 574308 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 191988 and 43449 respectively and the weighted average market clearing price of these RECs was ₹1200/MWh in IEX and ₹1050/MWh in PXIL.

⁵*Excluding Banking/Swapping contracts*

Table-1: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (ALL INDIA), JULY 2018				
Sr.No	Short-term transactions	Volume (MUs)	% to Volume of short-term transactions	% to Total Generation
1	Bilateral	7280.93	55.04	7.11
	(i) Through Traders and PXs	5815.04	43.96	5.68
	(ii) Direct	1465.90	11.08	1.43
2	Through Power Exchanges	4054.24	30.65	3.96
	(i) IEX	4027.79	30.45	3.93
	(ii) PXIL	26.45	0.20	0.026
3	Through DSM	1893.85	14.32	1.85
	Total	13229.02	-	12.92
	Total Generation	102417.48	-	-

Source: NLDC

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

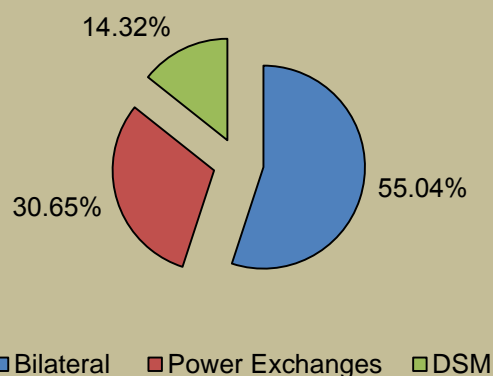
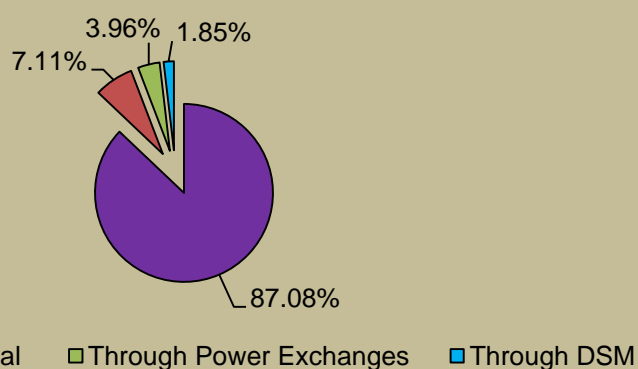


Figure-2: Volume of Various Kinds of Electricity Transactions in Total Electricity Generation, July 2018



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

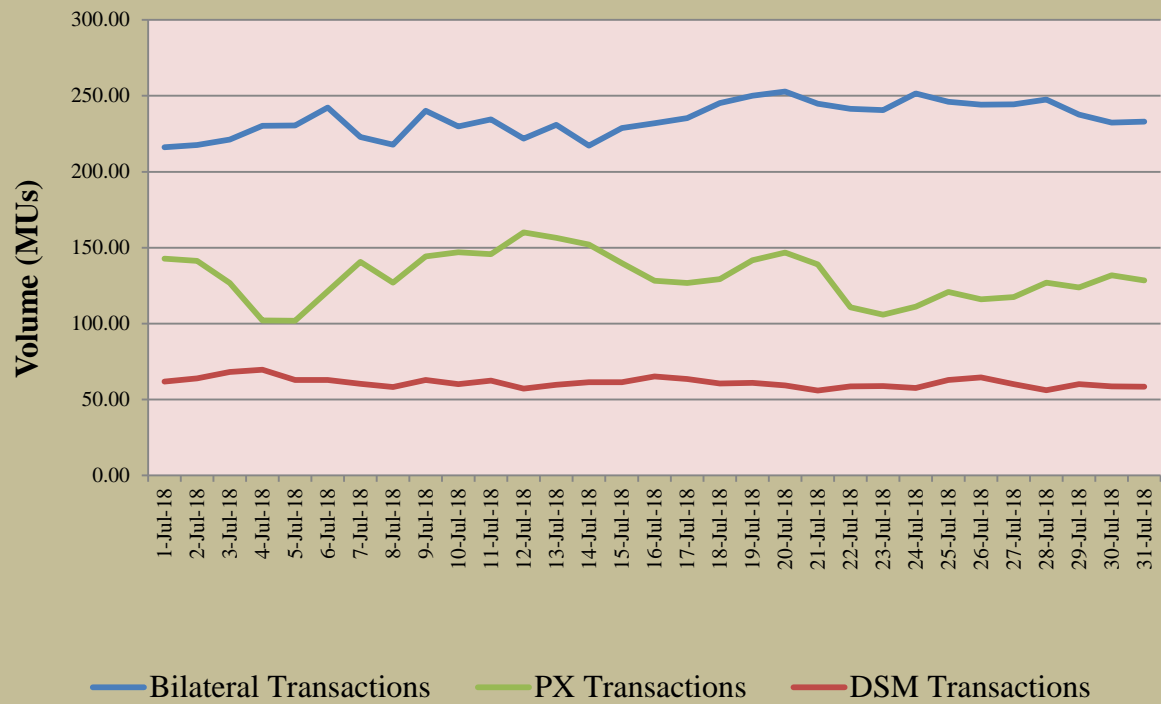


Table-2: PERCENTAGE SHARE OF ELECTRICITY TRANSACTED BY TRADING LICENSEES, JULY 2018			
Sr.No	Name of the Trading Licensee	% Share in total Volume transacted by Trading Licensees	Herfindahl-Hirschman Index
1	PTC India Ltd.	46.66	0.2178
2	Arunachal Pradesh Power Corporation (P) ltd	11.48	0.0132
3	Manikaran Power Ltd.	11.30	0.0128
4	NTPC Vidyut Vyapar Nigam Ltd.	7.18	0.0052
5	Mittal Processors (P) Ltd.	6.89	0.0047
6	GMR Energy Trading Ltd.	4.81	0.0023
7	Tata Power Trading Company (P) Ltd.	4.26	0.0018
8	Statkraft Markets Pvt. Ltd.	1.52	0.0002
9	Knowledge Infrastructure Systems (P) Ltd	1.20	0.0001
10	Adani Enterprises Ltd.	1.02	0.0001
11	Jaiprakash Associates Ltd.	0.79	0.0001
12	JSW Power Trading Company Ltd	0.62	0.0000
13	IPCL Power Trading Pvt. Ltd.	0.56	0.0000
14	RPG Power Trading Company Ltd.	0.47	0.0000
15	Essar Electric Power Development Corp. Ltd.	0.36	0.0000
16	Instinct Infra & Power Ltd.	0.34	0.0000
17	Shree Cement Ltd.	0.17	0.0000
18	National Energy Trading & Services Ltd.	0.16	0.0000
19	Customized Energy Solutions India (P) Ltd.	0.16	0.0000
20	Parshavanath Power Projects Private Limited	0.03	0.0000
21	Gita Power & Infrastructure Private Limited	0.01	0.0000
22	Phillip Commodities India (P) Ltd.	0.01	0.0000
23	My Home Power Private Ltd.	0.003	0.0000
TOTAL		100.00%	0.2584
Top 5 trading licensees		83.51%	
<i>Note 1: Volume of electricity transacted by the trading licensees includes bilateral transactions (inter-state & intra-state) and the transactions undertaken through power exchanges.</i>			
<i>Note 2: Volume of electricity transacted by Global Energy Ltd is not included.</i>			
<i>Source: Information submitted by trading licensees</i>			

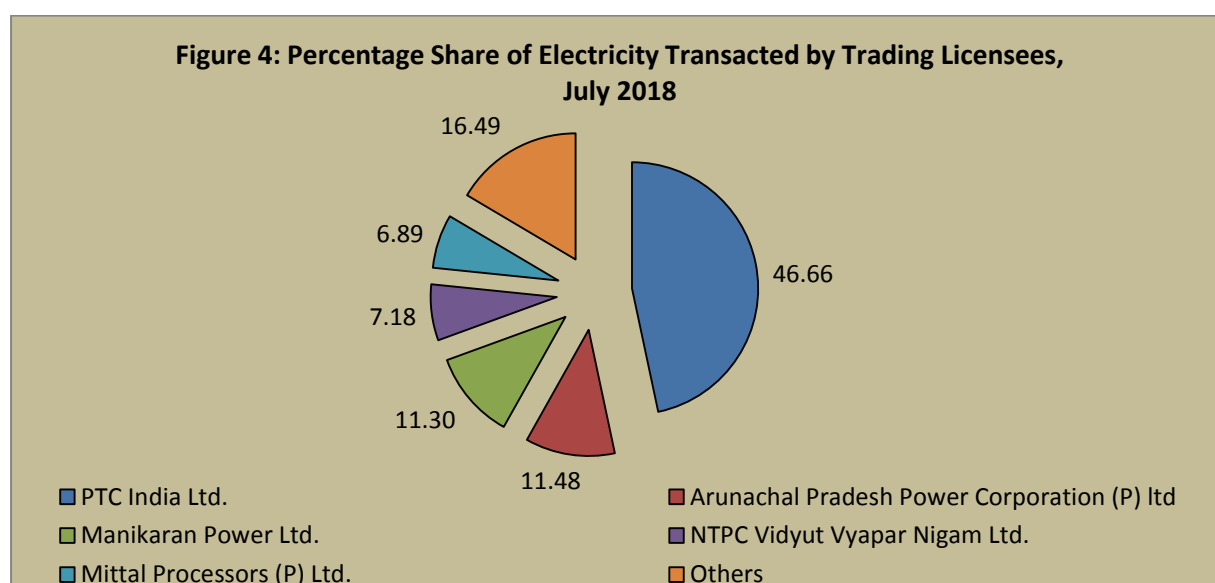


Table-3: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS, JULY 2018		
Sr.No	Item	Sale Price of Traders (₹/kWh)
1	Minimum	2.82
2	Maximum	6.50
3	Weighted Average	4.08

Source: Information submitted by trading licensees

Table-4: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS (TIME-WISE), JULY 2018		
Sr.No	Period of Trade	Sale Price of Traders (₹/kWh)
1	RTC	4.10
2	PEAK	-
3	OFF PEAK	3.98

Source: Information submitted by trading licensees

Table-5: PRICE OF ELECTRICITY TRANSACTED THROUGH POWER EXCHANGES, JULY 2018			
Sr.No	ACP	Price in IEX (₹/kWh)	Price in PXIL (₹/kWh)
1	Minimum	1.79	0.35
2	Maximum	9.70	5.95
3	Weighted Average	3.59	3.75

Source: Information submitted by IEX and PXIL

Table-6: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF IEX, JULY 2018			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	51.69	4.43
2	Day Ahead Contingency Contracts	68.95	3.76
	Total	120.64	4.05

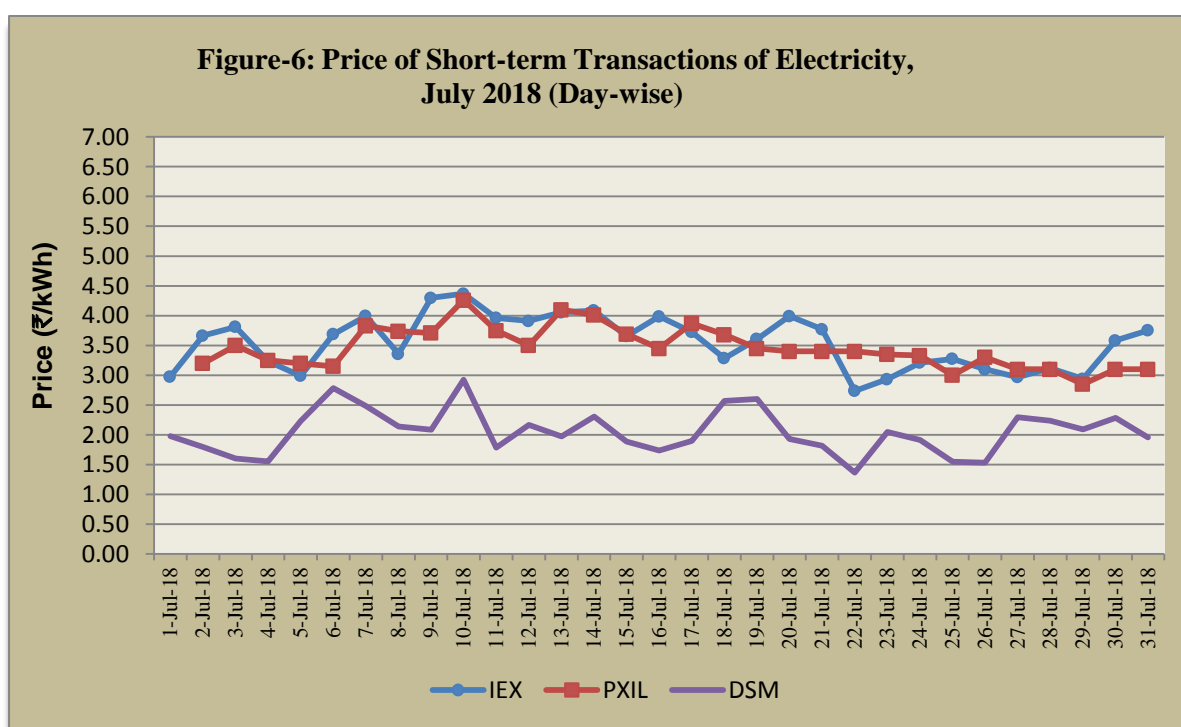
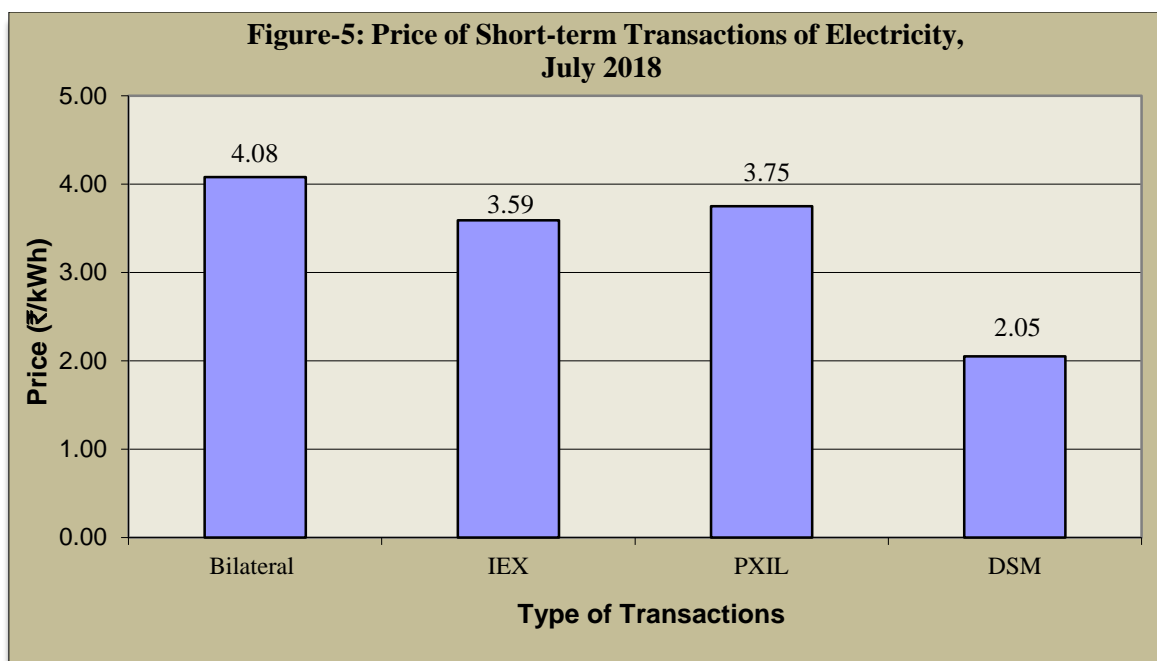
Source: IEX

Table-7: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF PXIL, JULY 2018			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra-Day Contracts	11.98	5.62

Source: PXIL

Table-8: PRICE OF ELECTRICITY TRANSACTED THROUGH DSM, JULY 2018		
Sr.No	Item	Price in All India Grid (₹/kWh)
1	Minimum	0.00
2	Maximum	7.20
3	Average	2.05

Source: NLDC



Note: No transactions were recorded in PXIL on 1st July, 2018.

Table-9: VOLUME OF ELECTRICITY SOLD THROUGH BILATERAL, JULY 2018		
Name of the Entity	Volume of Sale (MUs)	% of Volume
HIMACHAL PRADESH	1150.95	15.76
MP	869.21	11.90
J & K	843.83	11.56
ANDHRA PRADESH	636.79	8.72
SEBMCORP	521.57	7.14
TAMIL NADU	308.86	4.23
UTTARAKHAND	256.95	3.52
WEST BENGAL	196.65	2.69
ESSAR POWER	184.38	2.52
DB POWER	169.17	2.32
GUJARAT	166.00	2.27
GMR CHATTISGARH	153.46	2.10
MB POWER	145.73	2.00
ADHUNIK POWER LTD	133.68	1.83
JAYPEE NIGRIE	126.72	1.74
KARCHAM WANGTOO	122.73	1.68
THERMAL POWERTECH	121.57	1.66
JITPL	99.80	1.37
SKS POWER	88.35	1.21
DAGACHU	85.82	1.18
MEGHALAYA	76.72	1.05
CHUZACHEN HEP	61.11	0.84
JORETHANG	60.53	0.83
TASHIDENG HEP	60.45	0.83
JINDAL POWER	53.57	0.73
SHREE CEMENT	53.32	0.73
ONGC PALATANA	48.36	0.66
RAJASTHAN	46.83	0.64
LANCO BUDHIL	43.59	0.60
TELANGANA	41.11	0.56
KERALA	39.50	0.54
CHHATTISGARH	35.95	0.49
KARNATAKA	32.97	0.45
SIKKIM	32.01	0.44
MAHARASHTRA	31.31	0.43
SAINJ HEP	29.76	0.41
TEESTA STG3	26.59	0.36
DVC	25.99	0.36
JINDAL STAGE-II	23.38	0.32
MANIPUR	19.16	0.26
AD HYDRO	12.89	0.18
LANCO_AMK	9.87	0.14
ODISHA	8.32	0.11
JHABUA POWER_MP	8.11	0.11
TRN ENERGY	7.82	0.11
MIZORAM	7.63	0.10
HARYANA	5.42	0.07
DELHI	4.20	0.06
GMR KAMALANGA	4.18	0.06
UTTAR PRADESH	3.06	0.04
NAGALAND	3.02	0.04
JHARKHAND	1.62	0.02
TOTAL	7302.64	100.00
Volume Sold by top 5 Regional Entities	4022.35	55.08

Table-10: VOLUME OF ELECTRICITY PURCHASED THROUGH BILATERAL, JULY 2018		
Name of the Entity	Volume of Purchase (MUs)	% of Volume
PUNJAB	1655.67	22.74
UTTAR PRADESH	1446.15	19.86
HARYANA	1361.40	18.70
DELHI	769.57	10.57
MAHARASHTRA	312.14	4.29
ESSAR STEEL	187.21	2.57
BANGLADESH	183.77	2.52
GUJARAT	151.58	2.08
UTTARAKHAND	144.06	1.98
CHHATTISGARH	138.37	1.90
JHARKHAND	134.77	1.85
BIHAR	133.18	1.83
TELANGANA	127.68	1.75
ODISHA	115.01	1.58
TAMIL NADU	87.86	1.21
NEPAL(NVVN)	69.57	0.96
WEST BENGAL	68.90	0.95
ANDHRA PRADESH	52.32	0.72
ASSAM	48.36	0.66
RAJASTHAN	43.00	0.59
DADRA & NAGAR HAVELI	30.45	0.42
MP	7.29	0.10
HIMACHAL PRADESH	5.92	0.08
DVC	3.63	0.05
KARNATAKA	3.09	0.04
TOTAL	7280.93	100.00
Volume Purchased by top 5 Regional Entities	5544.93	76.16

**Table-11: VOLUME OF ELECTRICITY SOLD THROUGH POWER EXCHANGES,
JULY 2018**

Name of the Entity	Volume of Sale (MUs)	% of Volume
TEESTA STG3	396.49	9.78
DVC	369.78	9.12
MAHARASHTRA	350.78	8.65
RAJASTHAN	209.55	5.17
NLC	204.93	5.05
KERALA	191.84	4.73
MP	190.82	4.71
HIMACHAL PRADESH	178.81	4.41
SEMBCORP	177.43	4.38
DELHI	168.74	4.16
KARNATAKA	114.73	2.83
AD HYDRO	109.43	2.70
TELANGANA	80.36	1.98
DIKCHU HEP	68.62	1.69
ANDHRA PRADESH	63.43	1.56
MB POWER	62.20	1.53
SPECTRUM	59.76	1.47
DB POWER	57.48	1.42
HARYANA	57.27	1.41
CHHATTISGARH	53.31	1.31
GUJARAT	53.19	1.31
MARUTI COAL	48.36	1.19
ACBIL	46.65	1.15
SAINJ HEP	43.16	1.06
SKS POWER	42.17	1.04
NTPC STATIONS-SR	40.20	0.99
MEGHALAYA	39.82	0.98
TRIPURA	35.47	0.87
SIKKIM	35.47	0.87
ODISHA	34.61	0.85
SHREE CEMENT	31.81	0.78
JHABUA POWER_MP	29.98	0.74
ESSAR POWER	29.31	0.72
MIZORAM	27.37	0.68
ADHUNIK POWER LTD	26.86	0.66
UTTAR PRADESH	25.18	0.62
NTPC STATIONS-NER	22.37	0.55
ASSAM	21.83	0.54
JINDAL POWER	20.79	0.51
KARCHAM WANGTOO	19.68	0.49
JAYPEE NIGRIE	17.83	0.44
TRN ENERGY	15.21	0.38
MANIPUR	14.89	0.37
JINDAL STAGE-II	13.97	0.34
GMR KAMALANGA	13.44	0.33
TAMIL NADU	12.34	0.30
WEST BENGAL	11.29	0.28
CHUZACHEN HEP	9.59	0.24
JHARKHAND	9.56	0.24

CHANDIGARH	9.20	0.23
TASHIDENG HEP	9.19	0.23
THERMAL POWERTECH	8.49	0.21
ONGC PALATANA	8.48	0.21
JORETHANG	8.38	0.21
GOA	7.98	0.20
MALANA	7.53	0.19
LANCO BUDHIL	5.90	0.15
BALCO	5.72	0.14
GMR CHATTISGARH	5.63	0.14
PUNJAB	4.40	0.11
DADRA & NAGAR HAVELI	4.23	0.10
NTPC STATIONS-NR	2.70	0.07
ILF&S	1.69	0.04
BIHAR	1.19	0.03
J & K	1.12	0.03
NTPC STATIONS-ER	1.06	0.03
NTPC STATIONS-WR	1.00	0.02
UTTARAKHAND	0.93	0.02
NAGALAND	0.87	0.02
BRBCL,NABINAGAR	0.33	0.01
DHARIWAL POWER	0.06	0.00
TOTAL	4054.24	100.00
Volume sold by top 5 Regional Entities	1531.54	37.78

Table-12: VOLUME OF ELECTRICITY PURCHASED THROUGH POWER EXCHANGES, JULY 2018

Name of the Entity	Volume of Purchase (MUs)	% of Volume
BIHAR	527.22	13.00
WEST BENGAL	430.08	10.61
GUJARAT	427.82	10.55
TELANGANA	384.43	9.48
J & K	355.57	8.77
UTTARAKHAND	307.73	7.59
ODISHA	207.47	5.12
ANDHRA PRADESH	183.80	4.53
MAHARASHTRA	174.34	4.30
ESSAR STEEL	164.28	4.05
KARNATAKA	154.01	3.80
UTTAR PRADESH	115.64	2.85
ASSAM	113.42	2.80
TAMIL NADU	112.64	2.78
HIMACHAL PRADESH	77.34	1.91
HARYANA	68.79	1.70
RAJASTHAN	65.79	1.62
KERALA	27.64	0.68
DELHI	26.31	0.65
DADRA & NAGAR HAVELI	23.31	0.57
GOA	21.35	0.53
MEGHALAYA	19.04	0.47
CHHATTISGARH	18.39	0.45
DAMAN AND DIU	16.72	0.41
MP	14.99	0.37
CHANDIGARH	6.65	0.16
DVC	6.23	0.15
JHARKHAND	3.00	0.07
TRIPURA	0.22	0.01
TOTAL	4054.24	100.00
Volume purchased by top 5 Regional Entities	2125.12	52.42

Table-13: VOLUME OF ELECTRICITY UNDER DRAWAL (EXPORTED) THROUGH DSM, JULY 2018		
Name of the Entity	Volume of Underdrawal (MUs)	% of Volume
MAHARASHTRA	100.48	6.44
TAMIL NADU	90.59	5.80
NTPC STATIONS-WR	78.26	5.01
KARNATAKA	75.66	4.85
J & K	68.69	4.40
NTPC STATIONS-NR	65.29	4.18
NLC	62.83	4.02
GUJARAT	62.36	3.99
MP	61.49	3.94
ANDHRA PRADESH	58.54	3.75
PUNJAB	57.58	3.69
SASAN UMPP	57.10	3.66
UTTAR PRADESH	47.12	3.02
BIHAR	45.70	2.93
DELHI	44.66	2.86
RAJASTHAN	37.91	2.43
TELANGANA	34.13	2.19
NTPC STATIONS-SR	32.44	2.08
NTPC STATIONS-ER	32.16	2.06
HARYANA	30.59	1.96
CHHATTISGARH	25.81	1.65
DVC	24.56	1.57
ESSAR STEEL	24.10	1.54
JHARKHAND	23.24	1.49
UTTARAKHAND	19.38	1.24
ASSAM	16.88	1.08
TRIPURA	15.47	0.99
KARCHAM WANGTOO	12.87	0.82
NEEPCO STATIONS	11.66	0.75
ARUNACHAL PRADESH	9.97	0.64
MB POWER	9.00	0.58
WEST BENGAL	8.73	0.56
JAYPEE NIGRIE	8.41	0.54
KERALA	8.28	0.53
MEGHALAYA	8.19	0.52
HIMACHAL PRADESH	8.09	0.52
GOA	8.04	0.52
MANIPUR	7.44	0.48
NJPC	6.91	0.44
PONDICHERRY	6.67	0.43
AD HYDRO	6.48	0.42
MIZORAM	6.08	0.39
LANKO_AMK	5.98	0.38
JINDAL POWER	5.90	0.38
CGPL	5.70	0.37
NSPCL	5.66	0.36

GMR KAMALANGA	5.42	0.35
SIKKIM	5.38	0.34
TASHIDENG HEP	5.08	0.33
DB POWER	5.04	0.32
LANCO BUDHIL	5.00	0.32
TEESTA STG3	4.92	0.32
NAGALAND	4.77	0.31
RANGANADI HEP	4.48	0.29
NEPAL(NVVN)	4.32	0.28
SEMBCORP	4.27	0.27
TEESTA HEP	4.11	0.26
TRN ENERGY	3.87	0.25
JINDAL STAGE-II	3.55	0.23
BALCO	3.31	0.21
KSK MAHANADI	3.14	0.20
JORETHANG	3.12	0.20
DIKCHU HEP	3.00	0.19
MALANA	2.80	0.18
BANGLADESH	2.67	0.17
CHUZACHEN HEP	2.51	0.16
MAITHON POWER LTD	2.50	0.16
ACBIL	2.46	0.16
ESSAR POWER	2.40	0.15
THERMAL POWERTECH	2.37	0.15
SHREE CEMENT	2.24	0.14
CHANDIGARH	2.20	0.14
ODISHA	2.17	0.14
NETCL VALLUR	2.01	0.13
RGPPL (DABHOL)	1.86	0.12
ADHUNIK POWER LTD	1.65	0.11
JITPL	1.52	0.10
EMCO	1.36	0.09
GMR CHATTISGARH	1.21	0.08
ILF&S	1.20	0.08
JHABUA POWER_MP	1.17	0.08
BRBCL,NABINAGAR	1.14	0.07
URI-2	1.10	0.07
DHARIWAL POWER	1.02	0.07
SKS POWER	1.02	0.07
RANGIT HEP	0.94	0.06
DAGACHU	0.92	0.06
COASTGEN	0.75	0.05
RKM POWER	0.66	0.04
LOKTAK	0.59	0.04
DADRA & NAGAR HAVELI	0.43	0.03
DOYANG HEP	0.36	0.02
Total	1561.26	100.00
Volume Exported by top 5 Regional Entities	413.69	26.50

Table-14: VOLUME OF ELECTRICITY OVER DRAWAL (IMPORTED) THROUGH DSM, JULY 2018		
Name of the Entity	Volume of Over drawal (MUs)	% of Volume
ODISHA	144.17	7.08
RAJASTHAN	126.57	6.21
UTTAR PRADESH	115.01	5.65
WEST BENGAL	110.33	5.42
NTPC STATIONS-NR	91.71	4.50
NTPC STATIONS-WR	87.58	4.30
HARYANA	81.90	4.02
MAHARASHTRA	72.62	3.57
GUJARAT	72.54	3.56
TELANGANA	69.13	3.39
KARNATAKA	61.00	2.99
HIMACHAL PRADESH	58.48	2.87
NTPC STATIONS-ER	54.02	2.65
TAMIL NADU	51.83	2.54
MP	47.09	2.31
NTPC STATIONS-SR	44.75	2.20
UTTARAKHAND	44.64	2.19
ANDHRA PRADESH	44.53	2.19
BIHAR	41.71	2.05
DVC	34.11	1.67
CHHATTISGARH	32.92	1.62
DAMAN AND DIU	31.38	1.54
PUNJAB	29.18	1.43
DAGACHU	28.20	1.38
CGPL	27.18	1.33
ESSAR STEEL	26.61	1.31
DADRA & NAGAR HAVELI	25.32	1.24
KERALA	25.11	1.23
ASSAM	21.37	1.05
JHARKHAND	21.28	1.04
THERMAL POWERTECH	20.97	1.03
DELHI	17.82	0.87
NETCL VALLUR	16.67	0.82
CHANDIGARH	15.67	0.77
GMR KAMALANGA	13.82	0.68
AD HYDRO	13.32	0.65
J & K	12.99	0.64
MB POWER	12.88	0.63
BALCO	11.52	0.57
GOA	11.41	0.56
EMCO	11.32	0.56
JINDAL STAGE-II	10.73	0.53
JHABUA POWER_MP	10.55	0.52
SEMBCORP	9.55	0.47
NLC	9.11	0.45
NEPAL(NVVN)	7.34	0.36
GMR CHATTISGARH	6.19	0.30
ILF&S	6.16	0.30
NSPCL	5.19	0.26

PONDICHERRY	4.83	0.24
MAITHON POWER LTD	4.68	0.23
SHREE CEMENT	4.65	0.23
ADHUNIK POWER LTD	4.54	0.22
ACBIL	4.47	0.22
RGPPL (DABHOL)	4.47	0.22
RKM POWER	4.15	0.20
ARUNACHAL PRADESH	3.65	0.18
JINDAL POWER	3.57	0.18
NAGALAND	3.53	0.17
SKS POWER	3.51	0.17
TEESTA STG3	3.27	0.16
TRIPURA	3.12	0.15
KARCHAM WANGTOO	3.01	0.15
MEGHALAYA	2.62	0.13
JITPL	2.33	0.11
JAYPEE NIGRIE	2.33	0.11
COASTGEN	2.26	0.11
MIZORAM	2.05	0.10
BANGLADESH	1.86	0.09
ESSAR POWER	1.82	0.09
JORETHANG	1.81	0.09
TRN ENERGY	1.69	0.08
KSK MAHANADI	1.60	0.08
TASHIDENG HEP	1.53	0.08
SASAN UMPP	1.50	0.07
MANIPUR	1.33	0.07
BRBCL,NABINAGAR	1.19	0.06
NEEPCO STATIONS	1.02	0.05
DIKCHU HEP	1.02	0.05
SIKKIM	0.95	0.05
LANKO_AMK	0.94	0.05
DB POWER	0.91	0.04
SIMHAPURI	0.85	0.04
LANKO KONDAPALLI	0.82	0.04
LANCO BUDHIL	0.65	0.03
RANGANADI HEP	0.54	0.03
CHUZACHEN HEP	0.47	0.02
MEENAKSHI	0.43	0.02
DOYANG HEP	0.38	0.02
URI-2	0.26	0.01
DHARIWAL POWER	0.22	0.01
MALANA	0.18	0.01
LOKTAK	0.15	0.01
RANGIT HEP	0.07	0.00
TEESTA HEP	0.04	0.00
TOTAL	2036.74	100.00
Volume Imported by top 5 Regional Entities	587.79	28.86

Table-15: TOTAL VOLUME OF NET SHORT-TERM TRANSACTIONS OF ELECTRICITY (REGIONAL ENTITY-WISE), JULY 2018		
Sr.No.	Name of the Entity	Total volume of net short-term transactions of electricity*
1	PUNJAB	1622.37
2	UTTAR PRADESH	1601.44
3	HARYANA	1418.82
4	BIHAR	655.11
5	DELHI	596.10
6	TELANGANA	425.64
7	ODISHA	421.55
8	WEST BENGAL	392.63
9	GUJARAT	370.39
10	ESSAR STEEL	354.00
11	UTTARAKHAND	219.17
12	BANGLADESH	182.95
13	ASSAM	143.99
14	JHARKHAND	124.63
15	MAHARASHTRA	76.53
16	CHHATTISGARH	74.61
17	DADRA & NAGAR HAVELI	74.42
18	NEPAL(NVVN)	72.59
19	DAMAN AND DIU	47.93
20	NTPC STATIONS-NR	23.71
21	CGPL	21.48
22	NTPC STATIONS-ER	20.80
23	GOA	16.74
24	NETCL VALLUR	14.66
25	CHANDIGARH	10.92
26	EMCO	9.96
27	NTPC STATIONS-WR	8.32
28	RKM POWER	3.49
29	ILF&S	3.27
30	RGPL (DABHOL)	2.61
31	BALCO	2.23
32	MAITHON POWER LTD	2.19
33	COASTGEN	1.51
34	SIMHAPURI	0.85
35	LANKO KONDAPALLI	0.82
36	LOKTAK	-0.44
37	NSPCL	-0.47
38	URI-2	-0.85
39	DHARIWAL POWER	-0.86
40	RANGIT HEP	-0.87
41	KSK MAHANADI	-1.54
42	PONDICHERRY	-1.84
43	RANGANADI HEP	-3.94
44	TEESTA HEP	-4.07
45	NAGALAND	-5.13
46	KARNATAKA	-5.26
47	ARUNACHAL PRADESH	-6.32
48	NJPC	-6.91
49	GMR KAMALANGA	-9.22

50	MALANA	-10.15
51	NEEPCO STATIONS	-10.64
52	LANKO_AMK	-14.90
53	NTPC STATIONS-NER	-22.37
54	TRN ENERGY	-25.21
55	NTPC STATIONS-SR	-27.89
56	JHABUA POWER_MP	-28.71
57	JINDAL STAGE-II	-30.17
58	MIZORAM	-39.02
59	MANIPUR	-40.15
60	ACBIL	-45.39
61	TRIPURA	-47.61
62	MARUTI COAL	-48.36
63	LANCO BUDHIL	-53.84
64	SASAN UMPP	-55.60
65	ONGC PALATANA	-56.84
66	DAGACHU	-58.54
67	RAJASTHAN	-58.92
68	SPECTRUM	-59.76
69	JORETHANG	-70.22
70	DIKCHU HEP	-70.60
71	SIKKIM	-71.91
72	CHUZACHEN HEP	-72.75
73	SAINJ HEP	-72.92
74	TASHIDENG HEP	-73.19
75	JINDAL POWER	-76.69
76	SHREE CEMENT	-82.72
77	JITPL	-98.99
78	MEGHALAYA	-103.07
79	THERMAL POWERTECH	-111.47
80	AD HYDRO	-115.48
81	JAYPEE NIGRIE	-150.64
82	KARCHAM WANGTOO	-152.27
83	GMR CHATTISGARH	-154.12
84	ADHUNIK POWER LTD	-157.65
85	TAMIL NADU	-159.47
86	KERALA	-186.86
87	MB POWER	-204.04
88	ESSAR POWER	-214.28
89	DB POWER	-230.77
90	NLC	-258.65
91	DVC	-376.37
92	TEESTA STG3	-424.72
93	ANDHRA PRADESH	-478.11
94	J & K	-545.09
95	SEBICORP	-693.72
96	MP	-1052.16
97	HIMACHAL PRADESH	-1196.09
* Total volume of net short-term transactions of electricity includes net of transactions of electricity through bilateral, power exchange and UI		
(-) indicates sale and (+) indicates purchase		

Table-16: DETAILS OF CONGESTION IN POWER EXCHANGES, JULY 2018			
	Details of Congestion	IEX	PXIL
A	Unconstrained Cleared Volume* (MUs)	4061.24	29.26
B	Actual Cleared Volume and hence scheduled (MUs)	4054.41	26.45
C	Volume of electricity that could not be cleared and hence not scheduled because of congestion (MUs) (A-B)	6.83	2.82
D	Volume of electricity that could not be cleared as % to Unconstrained Cleared Volume	0.17%	9.63%
E	Percentage of the time congestion occurred during the month (Number of hours congestion occurred/Total number of hours in the month)	6.52%	5.58%
F	Congestion occurrence (%) time block wise		
	0.00 - 6.00 hours	18.56%	14.46%
	6.00 - 12.00 hours	8.25%	28.92%
	12.00 - 18.00 hours	32.47%	28.92%
	18.00 - 24.00 hours	40.72%	27.71%
* This power would have been scheduled had there been no congestion.			
Source: IEX & PXIL & NLDC			

Table-17: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY IN INDIA (DAY-WISE) (MUs), JULY 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-Jul-18	174.44	41.74	142.69	0.00	61.89	3381.32
2-Jul-18	174.63	43.10	141.09	0.30	63.88	3359.67
3-Jul-18	178.87	42.39	126.66	0.18	68.15	3255.05
4-Jul-18	186.71	43.59	101.83	0.24	69.65	3211.10
5-Jul-18	184.73	45.67	101.46	0.34	62.77	3369.95
6-Jul-18	197.30	45.08	120.92	0.34	62.83	3460.97
7-Jul-18	178.81	44.02	138.94	1.77	60.24	3513.99
8-Jul-18	172.67	45.23	124.51	2.52	58.26	3512.21
9-Jul-18	191.67	48.45	141.70	2.63	62.76	3510.30
10-Jul-18	185.15	44.76	144.32	2.58	60.05	3527.92
11-Jul-18	187.09	47.34	145.60	0.16	62.33	3416.11
12-Jul-18	176.07	45.72	159.87	0.18	57.24	3396.72
13-Jul-18	184.16	46.68	154.49	1.92	59.69	3295.50
14-Jul-18	170.76	46.41	149.57	2.58	61.38	3262.98
15-Jul-18	184.36	44.43	137.89	1.96	61.39	3195.82
16-Jul-18	180.48	51.57	127.95	0.18	65.22	3257.49
17-Jul-18	183.40	51.92	124.25	2.58	63.55	3282.63
18-Jul-18	193.11	52.14	126.77	2.58	60.64	3381.27
19-Jul-18	199.53	50.52	141.53	0.18	60.96	3422.68
20-Jul-18	202.25	50.66	146.59	0.18	59.19	3381.84
21-Jul-18	194.47	50.34	138.69	0.18	56.00	3204.15
22-Jul-18	191.11	50.30	110.60	0.16	58.69	2999.18
23-Jul-18	190.64	50.01	105.57	0.30	58.95	3184.85
24-Jul-18	201.23	50.27	110.82	0.34	57.53	3321.09
25-Jul-18	196.11	49.91	120.60	0.32	62.77	3208.10
26-Jul-18	193.81	50.34	115.60	0.31	64.60	3034.88
27-Jul-18	194.48	49.82	117.23	0.32	60.07	3075.54
28-Jul-18	199.59	47.89	126.61	0.34	56.09	3136.68
29-Jul-18	189.50	48.16	123.64	0.25	60.11	3147.31
30-Jul-18	191.37	40.91	131.55	0.24	58.61	3354.48
31-Jul-18	186.53	46.51	128.26	0.27	58.35	3355.70
Total	5815.04	1465.90	4027.79	26.45	1893.85	102417.48
<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), JULY 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-Jul-18	2.28	5.50	2.98	-	-	-	0.00	5.74	1.98
2-Jul-18	2.73	6.52	3.66	3.20	3.20	3.20	0.00	4.91	1.80
3-Jul-18	2.37	7.53	3.81	3.50	3.50	3.50	0.00	3.45	1.60
4-Jul-18	1.80	6.00	3.23	3.10	3.30	3.25	0.00	5.95	1.55
5-Jul-18	1.79	5.20	2.99	3.20	3.20	3.20	0.00	5.95	2.23
6-Jul-18	2.04	8.00	3.69	3.15	3.15	3.15	0.00	5.95	2.79
7-Jul-18	2.59	7.50	3.99	0.35	5.70	3.83	0.00	5.11	2.49
8-Jul-18	2.30	7.29	3.36	3.50	4.50	3.74	0.00	5.32	2.14
9-Jul-18	2.82	7.98	4.30	3.25	5.65	3.71	0.00	5.11	2.09
10-Jul-18	2.75	7.52	4.37	3.75	5.95	4.26	0.00	6.16	2.92
11-Jul-18	2.77	7.74	3.96	3.75	3.75	3.75	0.00	5.11	1.79
12-Jul-18	2.45	7.70	3.91	3.50	3.50	3.50	0.00	5.32	2.16
13-Jul-18	2.46	8.00	4.06	4.10	4.10	4.10	0.00	5.95	1.98
14-Jul-18	2.41	8.98	4.09	3.50	5.75	4.01	0.00	5.32	2.31
15-Jul-18	2.50	7.00	3.66	3.45	4.10	3.69	0.00	3.45	1.89
16-Jul-18	2.32	9.50	3.99	3.45	3.45	3.45	0.00	4.91	1.73
17-Jul-18	2.32	7.76	3.73	3.45	5.06	3.87	0.00	3.45	1.90
18-Jul-18	2.32	6.86	3.28	3.45	4.01	3.68	0.36	5.95	2.57
19-Jul-18	2.45	8.70	3.61	3.45	3.45	3.45	0.36	7.20	2.60
20-Jul-18	3.00	9.70	3.99	3.40	3.40	3.40	0.00	3.45	1.93
21-Jul-18	2.79	9.50	3.77	3.40	3.40	3.40	0.00	3.45	1.81
22-Jul-18	2.13	4.82	2.74	3.40	3.40	3.40	0.00	3.45	1.37
23-Jul-18	1.81	6.00	2.93	3.10	3.40	3.35	0.00	6.16	2.05
24-Jul-18	2.17	8.50	3.21	3.10	3.40	3.33	0.00	3.45	1.91
25-Jul-18	2.32	9.50	3.27	3.00	3.00	3.00	0.00	5.95	1.55
26-Jul-18	2.20	6.00	3.10	3.30	3.30	3.30	0.00	3.03	1.53
27-Jul-18	2.11	5.41	2.97	3.10	3.10	3.10	0.00	6.36	2.30
28-Jul-18	2.33	6.00	3.12	3.10	3.10	3.10	0.00	6.16	2.23
29-Jul-18	2.25	4.81	2.94	2.85	2.85	2.85	0.00	6.16	2.09
30-Jul-18	2.46	7.50	3.58	3.10	3.10	3.10	0.00	6.16	2.28
31-Jul-18	2.90	8.00	3.75	3.10	3.10	3.10	0.00	4.91	1.96
	1.79#	9.70#	3.59	0.35#	5.95#	3.75	0.00#	7.20#	2.05
Source: Data on price of PX transactions from IEX and PXIL and data on DSM Price from NLDC.									
* Weighted average price computed based on Area Clearing Volume (ACV) and Area Clearing Price (ACP) for each hour of the day. Here, ACV and ACP represent the scheduled volume and weighted average price of all the bid areas of power exchanges.									
** Simple average price of DSM of 96 time blocks of 15 minutes each in a day. DSM price includes Ceiling DSM Rate +40% additional DSM charge.									
# Maximum/Minimum in the month									

Table-19: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (REGIONAL ENTITY*-WISE) (MUs), JULY 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	0.50	1655.67	1655.17	4.40	0.00	-4.40	29.18	57.58	-28.40	1622.37
HARYANA	5.42	1361.40	1355.98	57.27	68.79	11.52	81.90	30.59	51.31	1418.82
RAJASTHAN	46.83	43.00	-3.83	209.55	65.79	-143.76	126.57	37.91	88.66	-58.92
DELHI	4.20	769.57	765.37	168.74	26.31	-142.43	17.82	44.66	-26.85	596.10
UP	3.06	1446.15	1443.08	25.18	115.64	90.46	115.01	47.12	67.90	1601.44
UTTARAKHAND	256.95	144.06	-112.89	0.93	307.73	306.80	44.64	19.38	25.27	219.17
HP	1150.9	5.92	-1145.02	178.81	77.34	-101.47	58.48	8.09	50.40	-1196.09
J & K	843.83	0.00	-843.83	1.12	355.57	354.45	12.99	68.69	-55.70	-545.09
CHANDIGARH	0.00	0.00	0.00	9.20	6.65	-2.55	15.67	2.20	13.48	10.92
MP	869.21	7.29	-861.93	190.82	14.99	-175.83	47.09	61.49	-14.40	-1052.16
MAHARASHTRA	31.31	312.14	280.83	350.78	174.34	-176.43	72.62	100.48	-27.87	76.53
GUJARAT	166.00	151.58	-14.43	53.19	427.82	374.63	72.54	62.36	10.18	370.39
CHHATTISGARH	35.95	138.37	102.42	53.31	18.39	-34.92	32.92	25.81	7.11	74.61
GOA	0.00	0.00	0.00	7.98	21.35	13.37	11.41	8.04	3.37	16.74
DAMAN AND DIU	0.00	0.00	0.00	0.00	16.72	16.72	31.38	0.17	31.21	47.93
D & N HAVELI	0.00	30.45	30.45	4.23	23.31	19.08	25.32	0.43	24.88	74.42
AP	636.79	52.32	-584.47	63.43	183.80	120.37	44.53	58.54	-14.00	-478.11
KARNATAKA	32.97	3.09	-29.88	114.73	154.01	39.28	61.00	75.66	-14.67	-5.26
KERALA	39.50	0.00	-39.50	191.84	27.64	-164.20	25.11	8.28	16.84	-186.86
TAMIL NADU	308.86	87.86	-221.00	12.34	112.64	100.30	51.83	90.59	-38.76	-159.47
PONDICHERRY	0.00	0.00	0.00	0.00	0.00	0.00	4.83	6.67	-1.84	-1.84
TELANGANA	41.11	127.68	86.57	80.36	384.43	304.07	69.13	34.13	35.00	425.64
WEST BENGAL	196.65	68.90	-127.76	11.29	430.08	418.79	110.33	8.73	101.60	392.63
ODISHA	8.32	115.01	106.69	34.61	207.47	172.86	144.17	2.17	142.00	421.55
BIHAR	0.11	133.18	133.07	1.19	527.22	526.03	41.71	45.70	-3.99	655.11
JHARKHAND	1.62	134.77	133.15	9.56	3.00	-6.56	21.28	23.24	-1.96	124.63
SIKKIM	32.01	0.00	-32.01	35.47	0.00	-35.47	0.95	5.38	-4.43	-71.91
DVC	25.99	3.63	-22.36	369.78	6.23	-363.56	34.11	24.56	9.54	-376.37
ARUNACHAL PRA	0.00	0.00	0.00	0.00	0.00	0.00	3.65	9.97	-6.32	-6.32
ASSAM	0.45	48.36	47.91	21.83	113.42	91.59	21.37	16.88	4.49	143.99
MANIPUR	19.16	0.00	-19.16	14.89	0.00	-14.89	1.33	7.44	-6.11	-40.15
MEGHALAYA	76.72	0.00	-76.72	39.82	19.04	-20.78	2.62	8.19	-5.57	-103.07
MIZORAM	7.63	0.00	-7.63	27.37	0.00	-27.37	2.05	6.08	-4.02	-39.02
NAGALAND	3.02	0.00	-3.02	0.87	0.00	-0.87	3.53	4.77	-1.24	-5.13
TRIPURA	0.00	0.00	0.00	35.47	0.22	-35.26	3.12	15.47	-12.35	-47.61
NTPC -NR	0.00	0.00	0.00	2.70	0.00	-2.70	91.71	65.29	26.41	23.71
NJPC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.91	-6.91	-6.91
AD HYDRO	12.89	0.00	-12.89	109.43	0.00	-109.43	13.32	6.48	6.84	-115.48
KARCHAM WANG	122.73	0.00	-122.73	19.68	0.00	-19.68	3.01	12.87	-9.86	-152.27
SHREE CEMENT	53.32	0.00	-53.32	31.81	0.00	-31.81	4.65	2.24	2.41	-82.72
LANCO BUDHIL	43.59	0.00	-43.59	5.90	0.00	-5.90	0.65	5.00	-4.35	-53.84
MALANA	0.00	0.00	0.00	7.53	0.00	-7.53	0.18	2.80	-2.62	-10.15
SAINJ HEP	29.76	0.00	-29.76	43.16	0.00	-43.16	0.00	0.00	0.00	-72.92
NTPC -WR	0.00	0.00	0.00	1.00	0.00	-1.00	87.58	78.26	9.32	8.32
JINDAL POWER	53.57	0.00	-53.57	20.79	0.00	-20.79	3.57	5.90	-2.32	-76.69

LANKO_AMK	9.87	0.00	-9.87	0.00	0.00	0.00	0.94	5.98	-5.04	-14.90
ACBIL	0.76	0.00	-0.76	46.65	0.00	-46.65	4.47	2.46	2.02	-45.39
BALCO	0.26	0.00	-0.26	5.72	0.00	-5.72	11.52	3.31	8.21	2.23
RGPL (DABHOL)	0.00	0.00	0.00	0.00	0.00	0.00	4.47	1.86	2.61	2.61
CGPL	0.00	0.00	0.00	0.00	0.00	0.00	27.18	5.70	21.48	21.48
EMCO	0.00	0.00	0.00	0.00	0.00	0.00	11.32	1.36	9.96	9.96
ESSAR STEEL	0.00	187.21	187.21	0.00	164.28	164.28	26.61	24.10	2.51	354.00
KSK MAHANADI	0.00	0.00	0.00	0.00	0.00	0.00	1.60	3.14	-1.54	-1.54
ESSAR POWER	184.38	0.00	-184.38	29.31	0.00	-29.31	1.82	2.40	-0.58	-214.28
JINDAL STAGE-II	23.38	0.00	-23.38	13.97	0.00	-13.97	10.73	3.55	7.18	-30.17
DB POWER	169.17	0.00	-169.17	57.48	0.00	-57.48	0.91	5.04	-4.12	-230.77
JAYPEE NIGRIE	126.72	0.00	-126.72	17.83	0.00	-17.83	2.33	8.41	-6.08	-150.64
GMR CHATTISGAH	153.46	0.00	-153.46	5.63	0.00	-5.63	6.19	1.21	4.98	-154.12
MB POWER	145.73	0.00	-145.73	62.20	0.00	-62.20	12.88	9.00	3.88	-204.04
MARUTI COAL	0.00	0.00	0.00	48.36	0.00	-48.36	0.00	0.00	0.00	-48.36
SPECTRUM	0.00	0.00	0.00	59.76	0.00	-59.76	0.00	0.00	0.00	-59.76
JHABUA POWER	8.11	0.00	-8.11	29.98	0.00	-29.98	10.55	1.17	9.38	-28.71
SASAN UMPP	0.00	0.00	0.00	0.00	0.00	0.00	1.50	57.10	-55.60	-55.60
TRN ENERGY	7.82	0.00	-7.82	15.21	0.00	-15.21	1.69	3.87	-2.18	-25.21
RKM POWER	0.00	0.00	0.00	0.00	0.00	0.00	4.15	0.66	3.49	3.49
NTPC SR	0.00	0.00	0.00	40.20	0.00	-40.20	44.75	32.44	12.31	-27.89
COASTGEN	0.00	0.00	0.00	0.00	0.00	0.00	2.26	0.75	1.51	1.51
THERMAL POWER	121.57	0.00	-121.57	8.49	0.00	-8.49	20.97	2.37	18.60	-111.47
ILF&S	0.00	0.00	0.00	1.69	0.00	-1.69	6.16	1.20	4.96	3.27
NLC	0.00	0.00	0.00	204.93	0.00	-204.93	9.11	62.83	-53.72	-258.65
SEBPCORP	521.57	0.00	-521.57	177.43	0.00	-177.43	9.55	4.27	5.29	-693.72
NETCL VALLUR	0.00	0.00	0.00	0.00	0.00	0.00	16.67	2.01	14.66	14.66
NTPC -ER	0.00	0.00	0.00	1.06	0.00	-1.06	54.02	32.16	21.86	20.80
MAITHON POWER	0.00	0.00	0.00	0.00	0.00	0.00	4.68	2.50	2.19	2.19
ADHUNIK POWER	133.6	0.00	-133.68	26.86	0.00	-26.86	4.54	1.65	2.88	-157.65
CHUZACHEN HEP	61.11	0.00	-61.11	9.59	0.00	-9.59	0.47	2.51	-2.04	-72.75
GMR KAMALAN	4.18	0.00	-4.18	13.44	0.00	-13.44	13.82	5.42	8.40	-9.22
JITPL	99.80	0.00	-99.80	0.00	0.00	0.00	2.33	1.52	0.81	-98.99
TEESTA HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.04	4.11	-4.07	-4.07
DAGACHU	85.82	0.00	-85.82	0.00	0.00	0.00	28.20	0.92	27.29	-58.54
JORETHANG	60.53	0.00	-60.53	8.38	0.00	-8.38	1.81	3.12	-1.31	-70.22
NEPAL(NVVN)	0.00	69.57	69.57	0.00	0.00	0.00	7.34	4.32	3.02	72.59
BANGLADESH	0.00	183.77	183.77	0.00	0.00	0.00	1.86	2.67	-0.82	182.95
TEESTA STG3	26.59	0.00	-26.59	396.49	0.00	-396.49	3.27	4.92	-1.65	-424.72
DIKCHU HEP	0.00	0.00	0.00	68.62	0.00	-68.62	1.02	3.00	-1.98	-70.60
TASHIDENG HEP	60.45	0.00	-60.45	9.19	0.00	-9.19	1.53	5.08	-3.55	-73.19
NTPC -NER	0.00	0.00	0.00	22.37	0.00	-22.37	0.00	0.00	0.00	-22.37
NEEPCO STN	0.00	0.00	0.00	0.00	0.00	0.00	1.02	11.66	-10.64	-10.64
RANGANADI HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.54	4.48	-3.94	-3.94
ONGC PALATANA	48.36	0.00	-48.36	8.48	0.00	-8.48	0.00	0.00	0.00	-56.84
LOKTAK	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.59	-0.44	-0.44

Source: NLDC

* in case of a state, the entities which are "selling" also include generators connected to state grid and the entities which are "buying" also include open access consumers.

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

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

Figure 7: Bilateral Contracts executed by Traders in August, 2018

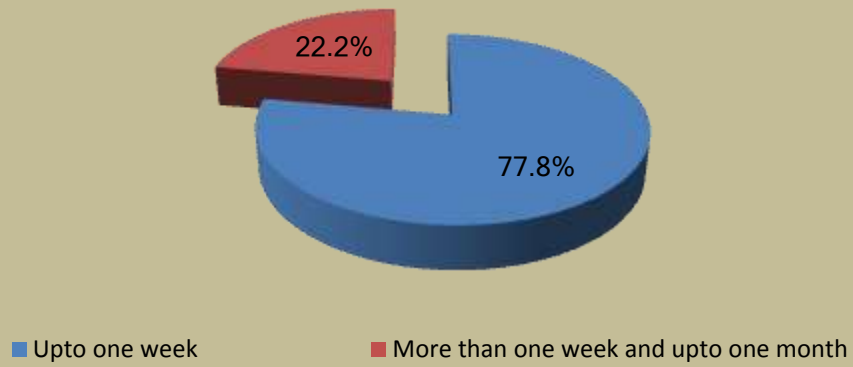


Figure-8: Forward Curve based on Prices of Bilateral Contracts

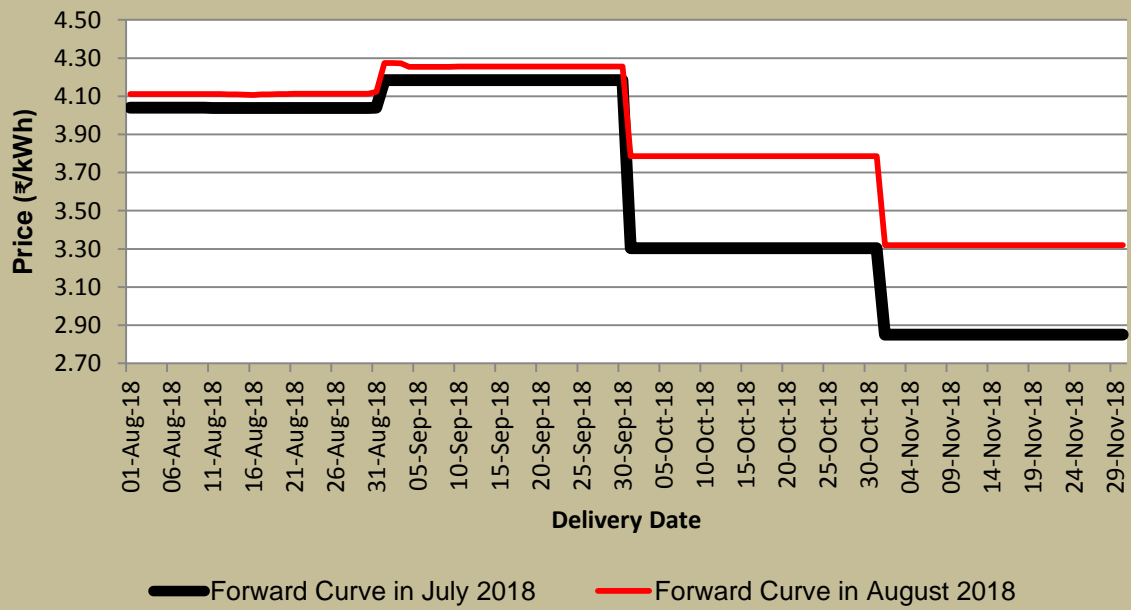


Table-20 : VOLUME AND PRICE OF RENEWABLE ENERGY CERTIFICATES (RECs) TRANSACTED THROUGH POWER EXCHANGES, JULY 2018					
Sr.No.	Details of REC Transactions	IEX		PXIL	
		Solar	Non-Solar	Solar	Non Solar
A	Volume of Buy Bid	808324	655553	574308	276832
B	Volume of Sell Bid	2258417	264901	1427593	48721
C	Ratio of Buy Bid to Sell Bid Volume	0.36	2.47	0.40	5.68
D	Market Clearing Volume (MWh)	808324	191988	574308	43449
E	Weighted average Market Clearing Price (₹/MWh)	1000	1200	1000	1050

Source: IEX and PXIL

Note 1: 1 REC = 1 MWh

Note 2: <i>Forbearance and Floor Price w.e.f 1st April 2017</i>		
Type of REC	Floor Price (₹/MWh)	Forbearance Price (₹/MWh)
Solar	1000.00	2500.00
Non-Solar	1000.00	2900.00