

# Monthly Report on Short-term Transactions of Electricity in India

November, 2018



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



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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
BRBCL	Bhartiya Rail Bijlee 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 **November, 2018** are as under:

### I: Volume of Short-term Transactions of Electricity

During November 2018, total electricity generation excluding generation from renewable and captive power plants in India was 99887.78 MUs (Table-1).

Of the total electricity generation, 10459.33 MUs (10.47%) was transacted through short-term, comprising of 5400.72 MUs (5.41%) through bilateral (through traders and term-ahead contracts on power exchanges and directly between distribution companies), followed by 3406.47 MUs (3.41%) through day ahead collective transactions on power exchanges and 1652.14 MUs (1.65%) through DSM (Table-1 & Figure-2).

Of the total short-term transactions, bilateral constitutes 51.64% (31.64% through traders and term-ahead contracts on power exchanges and 19.99% directly between distribution companies) followed by 32.57% through day ahead collective transactions on power exchanges and 15.80% 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 November, 2018. In November, 2018, 22 trading licensees were engaged in short term trading. Top 5 trading licensees had a share of 71.62% in the total volume traded by all the licensees. These are PTC India Ltd., Arunachal Pradesh Power Corporation (P) Ltd, Manikaran Power Ltd., Mittal Processors (P) Ltd. and GMR Energy Trading 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 0.1519 for the month of November, 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 3403.89 MUs and 2.58 MUs respectively. The volume of total buy bids and sell bids was 4610.51 MUs and 6937.06 MUs respectively in IEX while the same was 7.03 MUs and 12.17 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 169.91 MUs and 111.59 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, ₹10.00/kWh and ₹4.47/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 ₹4.23/kWh, ₹8.26/kWh and ₹5.08/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 ₹1.50/kWh, ₹19.99/kWh and ₹3.82/kWh respectively in IEX and ₹3.30/kWh, ₹4.50/kWh and ₹3.38/kWh respectively in PXIL (Table-5).

The price of electricity transacted through IEX and PXIL in the term-ahead market was ₹4.09/kWh and ₹4.83/kWh respectively (Table-6 and Table-7).

**(iii) Price of electricity transacted through DSM:** The average deviation settlement price was ₹2.20/kWh. The minimum and maximum deviation settlement prices were ₹0.00/kWh and ₹6.16/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 Entity<sup>1</sup>-Wise)**

Of the total bilateral transactions, top 5 regional entities sold 58.75% of the volume, and these were Punjab, Delhi, Haryana, Sembcorp Gayatri Power Ltd. and Damodar Valley Corporation. Top 5 regional entities purchased 58.24% of the volume, and these were Madhya Pradesh, Andhra Pradesh, Gujarat, Jammu and Kashmir and Uttarakhand (Table-9& 10).

Of the total power exchange transactions, top 5 regional entities sold 30.86% of the volume, and these were Delhi, Teesta Stage 3 Hydro Power Project, Sembcorp Gayatri Power Ltd., Rajasthan and Telangana. Top 5 regional entities purchased 58.01% of the volume, and these were Gujarat, Telangana, Maharashtra, Odisha and Bihar (Table-11 & 12).

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<sup>1</sup> 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 34.66% of the volume, and these were NTPC Stations (Western region), Maharashtra, Sasan Ultra Mega Power Project, Madhya Pradesh and Uttar Pradesh (Table-13). Top 5 regional entities overdrew 27.72% of the volume, and these were Odisha, Rajasthan, Gujarat, Damodar Valley Corporation and NTPC Stations (Western region) (Table-14).

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

#### **IV: Congestion<sup>2</sup> 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”<sup>3</sup>.

In the month of November 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

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

<sup>3</sup> “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 due to congestion was 0.20% of the unconstrained cleared volume. In terms of time, congestion occurred was 4.76% 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 November, 2018. This section covers an analysis of bilateral contracts executed in December, 2018.

**(i) Duration of bilateral contracts:** During December 2018, a total of 82 bilateral contracts (excluding banking/swap contracts) have been executed by traders for the volume of 851.13 MUs. Figure-7 shows the percentage of contracts categorized according to the period of power supply. It can be observed from the figure that 79.3% of the bilateral contracts were executed for duration of up to one week, 20.7% 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, 23 banking/swapping bilateral contracts were also executed for the volume of 620.39 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 1<sup>st</sup> December, 2018 to 31<sup>st</sup> March, 2019 based on the bilateral contracts<sup>4</sup> executed till

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<sup>4</sup>Excluding Banking/Swapping contracts

December, 2018. Forward curves have been drawn for the contracts executed in November, 2018 and December, 2018 for the purpose of comparison. It is observed that forward contract prices are higher for the contracts executed in December, 2018 compared to the contracts executed in November, 2018 during the period 12<sup>th</sup> December 2018 – 15<sup>th</sup> January 2019 and 1<sup>st</sup> February 2019 – 31<sup>st</sup> March 2019.

## **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 November, 2018 are shown in Table-20. The market clearing volume of solar RECs transacted on IEX and PXIL were 32556 and 26321 respectively and the market clearing price of these RECs was ₹1101/MWh in IEX and ₹1051/MWh in PXIL. Market clearing volume of non-solar RECs transacted on IEX and PXIL were 355657 and 91204 respectively and the weighted average market clearing price of these RECs was ₹1252/MWh in IEX and ₹1260/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 3.72 and 4.20 in IEX and PXIL respectively. For non-solar RECs, the ratio of buy bids to sell bids was 1.24 and 1.97 in IEX and PXIL respectively.

## VII: Inferences:

- The percentage of short-term transactions of electricity to total electricity generation was 10.47%.
- Of the total short-term transactions, bilateral constitutes 51.64% (31.64% through traders and term-ahead contracts on power exchanges and 19.99% directly between distribution companies) followed by 32.57% through day ahead collective transactions on power exchanges and 15.80% through DSM
- Top 5 trading licensees had a share of 71.62% 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 0.1519, indicating moderate concentration of market power.
- The weighted average price of electricity transacted through trading licensees was ₹4.47/kWh. The weighted average price of electricity transacted through IEX and PXIL was ₹3.82/kWh and ₹3.38/kWh respectively.
- The average price of electricity transacted through DSM was ₹2.20/kWh.
- Top 5 electricity selling regional entities were Punjab, Delhi, Sembcorp Gayatri Power Ltd., Haryana and Essar Power Ltd. Top 5 electricity purchasing regional entities were Gujarat, Madhya Pradesh, Andhra Pradesh, Maharashtra and Odisha.
- During the month, the volume of electricity that could not be cleared in IEX due to congestion was 0.20% of the unconstrained cleared volume. In terms of time, congestion occurred was 4.76% in IEX. No congestion occurred in PXIL.
- In December 2018, 79.3% of the bilateral contracts were executed for duration of up to one week, 20.7% 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 1<sup>st</sup> December, 2018 to 31<sup>st</sup> March, 2019 based on the bilateral contracts<sup>5</sup> executed till December, 2018 shows that forward contract prices are higher for the contracts executed in December, 2018 compared to the contracts executed in November, 2018 during the period 12<sup>th</sup> December 2018 – 15<sup>th</sup> January 2019 and 1<sup>st</sup> February 2019 – 31<sup>st</sup> March 2019
- The market clearing volume of solar RECs transacted on IEX and PXIL were 32556 and 26321 respectively and the market clearing price of these RECs was ₹1101/MWh in IEX and ₹1051/MWh in PXIL. Market clearing volume of non-solar RECs transacted on IEX and PXIL were 355657 and 91204 respectively and the weighted average market clearing price of these RECs was ₹1252/MWh in IEX and ₹1260/MWh in PXIL.

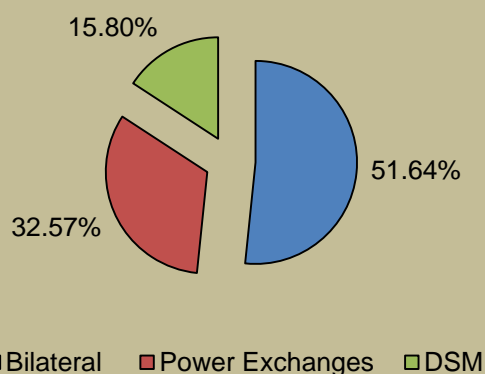
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<sup>5</sup>*Excluding Banking/Swapping contracts*

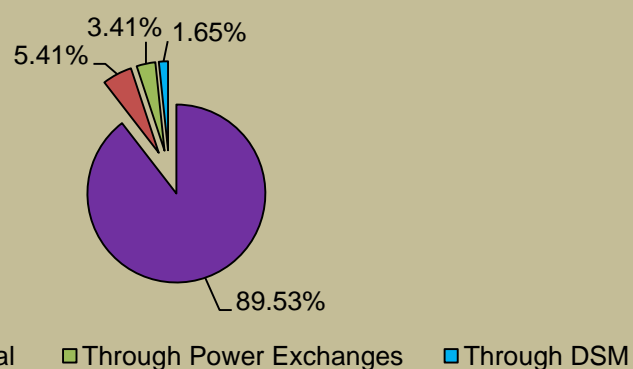
Table-1: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (ALL INDIA), NOVEMBER 2018				
Sr.No	Short-term transactions	Volume (MUs)	% to Volume of short-term transactions	% to Total Generation
1	Bilateral	5400.72	51.64	5.41
	(i) Through Traders and PXs	3309.61	31.64	3.31
	(ii) Direct	2091.11	19.99	2.09
2	Through Power Exchanges	3406.47	32.57	3.41
	(i) IEX	3403.89	32.54	3.41
	(ii) PXIL	2.58	0.02	0.003
3	Through DSM	1652.14	15.80	1.65
	<b>Total</b>	<b>10459.33</b>	<b>-</b>	<b>10.47</b>
	<b>Total Generation</b>	<b>99887.78</b>	<b>-</b>	<b>-</b>

Source: NLDC

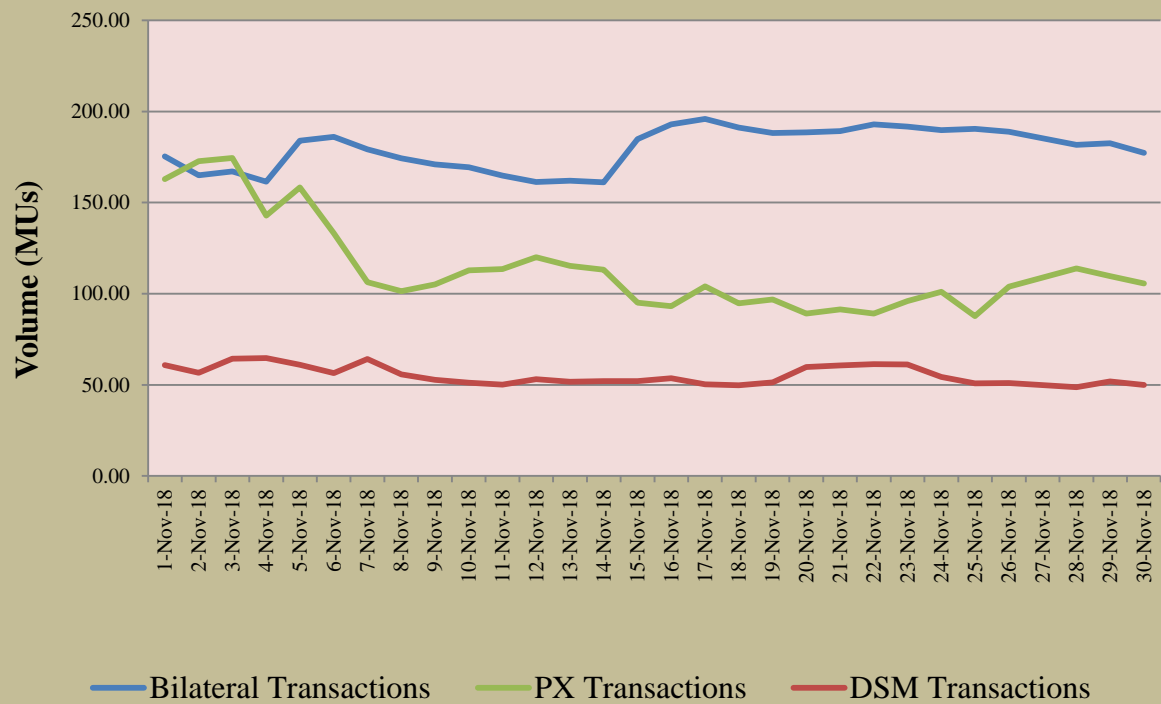
**Figure-1: Volume of Short-term Transactions of Electricity, November 2018**



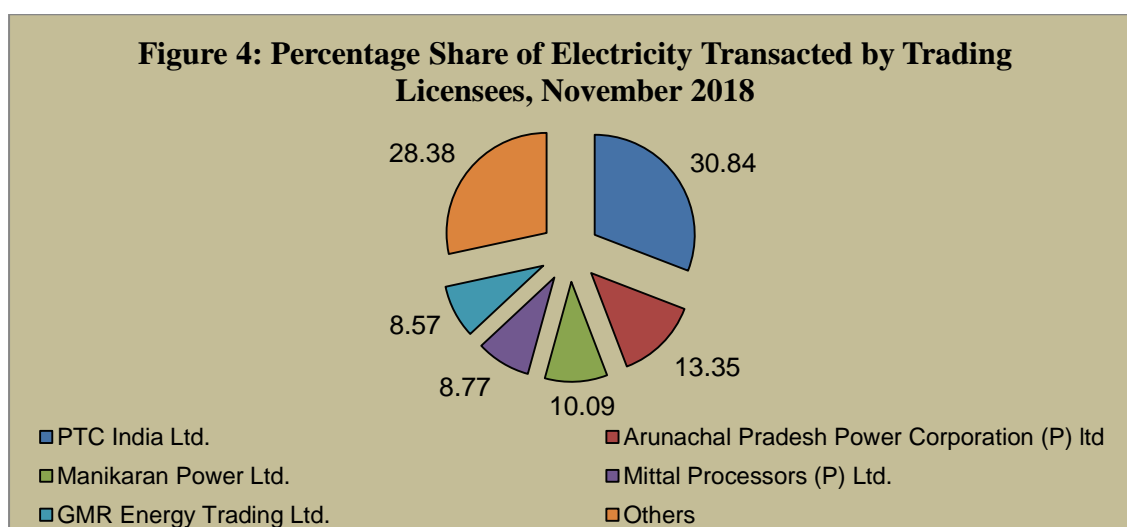
**Figure-2: Volume of Various Kinds of Electricity Transactions in Total Electricity Generation, November 2018**



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



<b>Table-2: PERCENTAGE SHARE OF ELECTRICITY TRANSACTED BY TRADING LICENSEES, NOVEMBER 2018</b>			
<b>Sr.No</b>	<b>Name of the Trading Licensee</b>	<b>% Share in total Volume transacted by Trading Licensees</b>	<b>Herfindahl-Hirschman Index</b>
1	PTC India Ltd.	30.84	0.0951
2	Arunachal Pradesh Power Corporation (P) ltd	13.35	0.0178
3	Manikaran Power Ltd.	10.09	0.0102
4	Mittal Processors (P) Ltd.	8.77	0.0077
5	GMR Energy Trading Ltd.	8.57	0.0074
6	NTPC Vidyut Vyapar Nigam Ltd.	7.75	0.0060
7	Tata Power Trading Company (P) Ltd.	5.92	0.0035
8	Adani Enterprises Ltd.	5.30	0.0028
9	Jaiprakash Associates Ltd.	2.55	0.0007
10	JSW Power Trading Company Ltd	1.74	0.0003
11	Knowledge Infrastructure Systems (P) Ltd	1.40	0.0002
12	Essar Electric Power Development Corp. Ltd.	1.25	0.0002
13	RPG Power Trading Company Ltd.	0.82	0.0001
14	Instinct Infra & Power Ltd.	0.44	0.0000
15	Gita Power & Infrastructure Private Limited	0.35	0.0000
16	National Energy Trading & Services Ltd.	0.29	0.0000
17	Customized Energy Solutions India (P) Ltd.	0.20	0.0000
18	Statkraft Markets Pvt. Ltd.	0.16	0.0000
19	Shree Cement Ltd.	0.13	0.0000
20	My Home Power Private Ltd.	0.05	0.0000
21	IPCL Power Trading Pvt. Ltd.	0.01	0.0000
22	Phillip Commodities India (P) Ltd.	0.01	0.0000
<b>TOTAL</b>		<b>100.00%</b>	<b>0.1519</b>
<b>Top 5 trading licensees</b>		<b>71.62%</b>	
<i>Note 1: Volume of electricity transacted by the trading licensees includes bilateral transactions (inter-state &amp; intra-state) and the transactions undertaken through power exchanges.</i>			
<i>Note 2: Volume of electricity transacted by Global Energy is not included.</i>			
<i>Source: Information submitted by trading licensees</i>			





<b>Table-3: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS, NOVEMBER 2018</b>		
<b>Sr.No</b>	<b>Item</b>	<b>Sale Price of Traders (₹/kWh)</b>
1	Minimum	3.01
2	Maximum	10.00
3	Weighted Average	4.47

Source: Information submitted by trading licensees

<b>Table-4: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS (TIME-WISE), NOVEMBER 2018</b>		
<b>Sr.No</b>	<b>Period of Trade</b>	<b>Sale Price of Traders (₹/kWh)</b>
1	RTC	4.23
2	PEAK	8.26
3	OFF PEAK	5.08

Source: Information submitted by trading licensees

<b>Table-5: PRICE OF ELECTRICITY TRANSACTED THROUGH POWER EXCHANGES, NOVEMBER 2018</b>			
<b>Sr.No</b>	<b>ACP</b>	<b>Price in IEX (₹/kWh)</b>	<b>Price in PXIL (₹/kWh)</b>
1	Minimum	1.50	3.30
2	Maximum	19.99	4.50
3	Weighted Average	3.82	3.38

Source: Information submitted by IEX and PXIL

<b>Table-6: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF IEX, NOVEMBER 2018</b>			
<b>Sr.No</b>	<b>Term ahead contracts</b>	<b>Actual Scheduled Volume (MUs)</b>	<b>Weighted Average Price (₹/kWh)</b>
1	Intra-Day Contracts	15.67	4.39
2	Day Ahead Contingency Contracts	130.25	3.91
3	Daily Contracts	24.00	4.87
	<b>Total</b>	<b>169.91</b>	<b>4.09</b>

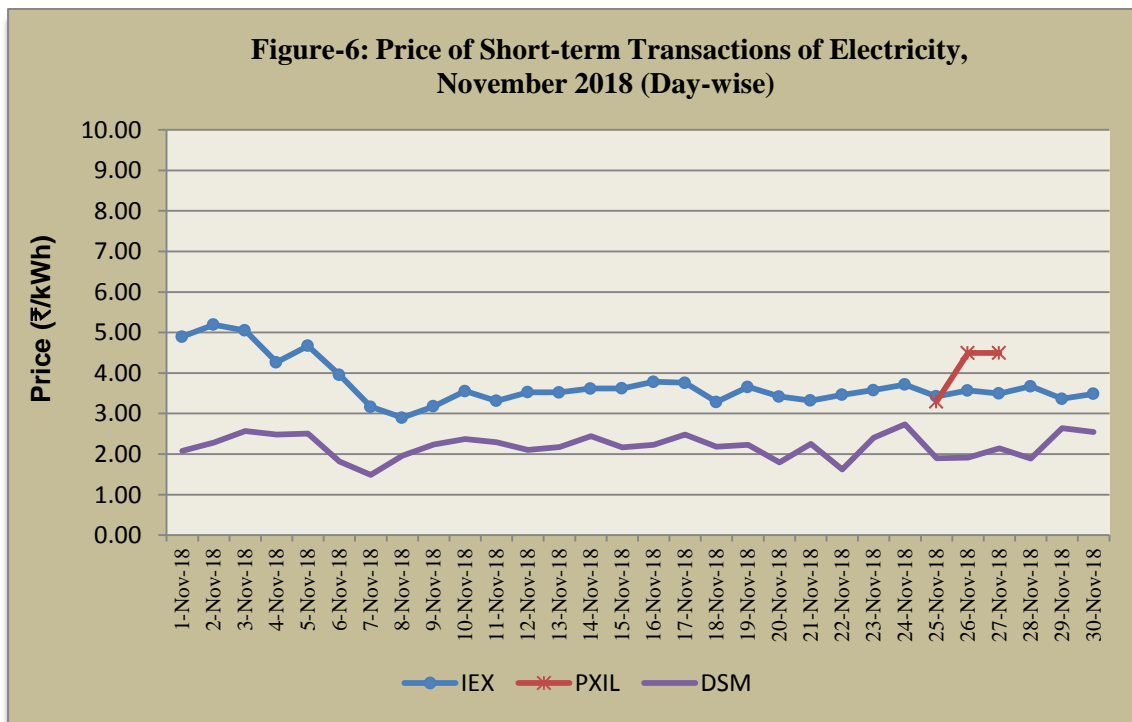
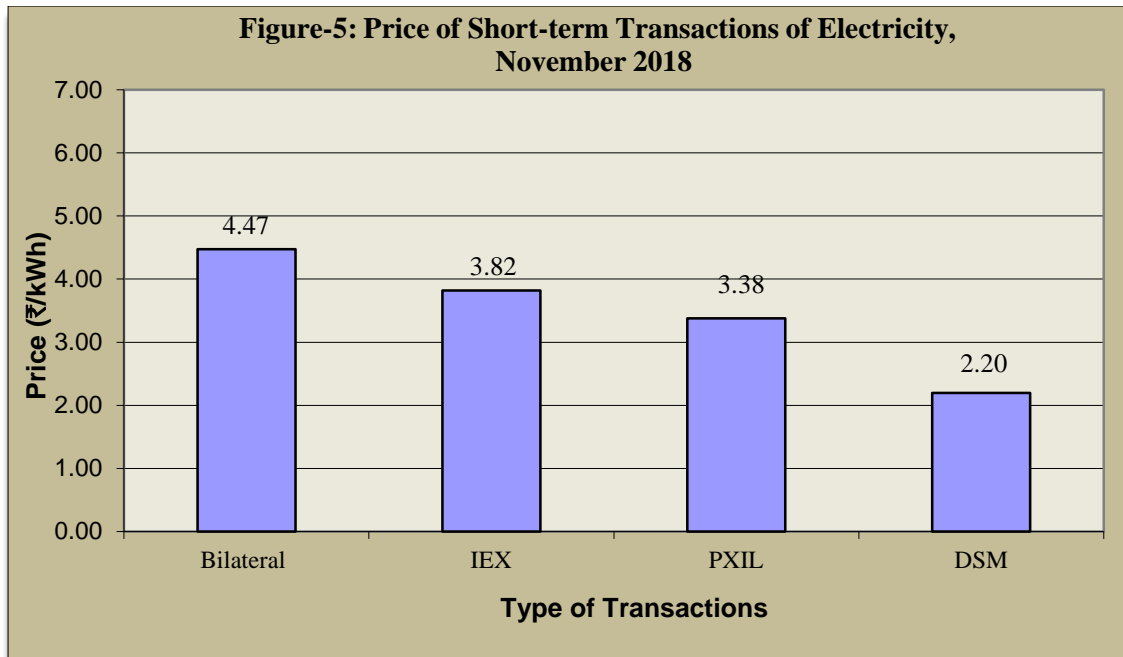
Source: IEX

<b>Table-7: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF PXIL, NOVEMBER 2018</b>			
<b>Sr.No</b>	<b>Term ahead contracts</b>	<b>Actual Scheduled Volume (MUs)</b>	<b>Weighted Average Price (₹/kWh)</b>
1	Intra-Day Contracts	55.19	4.58
2	Any Day(s) Contracts	14.40	4.55
3	Weekly Contracts	42.00	5.25
	<b>Total</b>	<b>111.59</b>	<b>4.83</b>

Source: PXIL

<b>Table-8: PRICE OF ELECTRICITY TRANSACTED THROUGH DSM, NOVEMBER 2018</b>		
<b>Sr.No</b>	<b>Item</b>	<b>Price in All India Grid (₹/kWh)</b>
1	Minimum	0.00
2	Maximum	6.16
3	Average	2.20

Source: NLDC



**Note:** In PXIL, transactions were recorded only from 25<sup>th</sup> -27<sup>th</sup> November 2018.

<b>Table-9: VOLUME OF ELECTRICITY SOLD THROUGH BILATERAL, NOVEMBER 2018</b>		
<b>Name of the Entity</b>	<b>Volume of Sale (MUs)</b>	<b>% of Volume</b>
PUNJAB	1138.34	21.09
DELHI	666.15	12.34
HARYANA	630.33	11.68
SEMBBCORP	450.77	8.35
DVC	285.78	5.29
GMR CHATTISGARH	239.09	4.43
CHHATTISGARH	226.80	4.20
UTTAR PRADESH	199.15	3.69
ESSAR POWER	185.32	3.43
ANDHRA PRADESH	159.10	2.95
ADHUNIK POWER LTD	135.31	2.51
WEST BENGAL	128.67	2.38
JAYPEE NIGRIE	116.28	2.15
KARNATAKA	70.71	1.31
GUJARAT	65.73	1.22
TELANGANA	59.46	1.10
KERALA	54.40	1.01
RAJASTHAN	53.24	0.99
JITPL	49.06	0.91
SHREE CEMENT	47.87	0.89
HIMACHAL PRADESH	47.79	0.89
ONGC PALATANA	46.25	0.86
UTTARAKHAND	41.67	0.77
DAGACHU	40.66	0.75
COASTGEN	26.64	0.49
J & K	25.79	0.48
TASHIDENG HEP	21.15	0.39
JORETHANG	20.75	0.38
MAHARASHTRA	19.96	0.37
ODISHA	19.93	0.37
SPECTRUM	18.36	0.34
DB POWER	17.88	0.33
CHUZACHEN HEP	12.84	0.24
MB POWER	12.63	0.23
LANKO_AMK	9.52	0.18
TRN ENERGY	8.81	0.16
JINDAL POWER	8.07	0.15
JINDAL STAGE-II	7.36	0.14
JHABUA POWER_MP	4.69	0.09
MP	4.45	0.08
SKS POWER	4.38	0.08
GMR KAMALANGA	4.25	0.08
TEESTA STG3	3.03	0.06
TAMIL NADU	2.67	0.05
MIZORAM	1.81	0.03
DADRA & NAGAR HAVELI	1.65	0.03
TRIPURA	1.42	0.03
BIHAR	1.35	0.03
ACBIL	0.73	0.01
NTPC STATIONS-NER	0.14	0.00
DIKCHU HEP	0.09	0.00
<b>TOTAL</b>	<b>5398.29</b>	<b>100.00</b>
<b>Volume Sold by top 5 Regional Entities</b>	<b>3171.37</b>	<b>58.75</b>

<b>Table-10: VOLUME OF ELECTRICITY PURCHASED THROUGH BILATERAL, NOVEMBER 2018</b>		
<b>Name of the Entity</b>	<b>Volume of Purchase (MUs)</b>	<b>% of Volume</b>
MP	923.12	17.09
ANDHRA PRADESH	866.02	16.04
GUJARAT	604.13	11.19
J & K	384.84	7.13
UTTARAKHAND	367.33	6.80
CHHATTISGARH	357.44	6.62
MAHARASHTRA	338.02	6.26
BANGLADESH	263.59	4.88
HIMACHAL PRADESH	249.14	4.61
ESSAR STEEL	196.32	3.64
JHARKHAND	111.75	2.07
ODISHA	100.75	1.87
UTTAR PRADESH	100.54	1.86
HARYANA	85.95	1.59
BIHAR	83.09	1.54
WEST BENGAL	81.62	1.51
NEPAL(NVVN)	57.04	1.06
ASSAM	50.19	0.93
GOA	30.96	0.57
TAMIL NADU	27.35	0.51
MEGHALAYA	25.92	0.48
RAJASTHAN	21.33	0.39
DADRA & NAGAR HAVELI	19.04	0.35
MANIPUR	18.00	0.33
DELHI	15.60	0.29
TELANGANA	11.70	0.22
DVC	9.28	0.17
KARNATAKA	0.51	0.01
<b>TOTAL</b>	<b>5400.58</b>	<b>100.00</b>
<b>Volume Purchased by top 5 Regional Entities</b>	<b>3145.44</b>	<b>58.24</b>

<b>Table-11: VOLUME OF ELECTRICITY SOLD THROUGH POWER EXCHANGES, NOVEMBER 2018</b>		
<b>Name of the Entity</b>	<b>Volume of Sale (MUs)</b>	<b>% of Volume</b>
DELHI	300.92	8.83
TEESTA STG3	220.49	6.47
SEMBCORP	186.21	5.47
RAJASTHAN	177.94	5.22
TELANGANA	165.60	4.86
HIMACHAL PRADESH	150.64	4.42
KARNATAKA	143.41	4.21
JAYPEE NIGRIE	110.59	3.25
DB POWER	108.38	3.18
WEST BENGAL	104.73	3.07
MP	101.99	2.99
TRIPURA	95.70	2.81
JINDAL POWER	89.08	2.62
CHHATTISGARH	81.73	2.40
ESSAR POWER	79.78	2.34
TRN ENERGY	79.47	2.33
ANDHRA PRADESH	75.41	2.21
BIHAR	75.38	2.21
NLC	68.00	2.00
GUJARAT	58.51	1.72
MB POWER	55.71	1.64
UTTARAKHAND	54.62	1.60
ASSAM	54.16	1.59
SHREE CEMENT	53.80	1.58
ACBIL	50.16	1.47
MARUTI COAL	47.30	1.39
MAHARASHTRA	42.22	1.24
ODISHA	34.05	1.00
DADRA & NAGAR HAVELI	33.93	1.00
SPECTRUM	33.58	0.99
J & K	30.91	0.91
SIKKIM	29.14	0.86
PUNJAB	26.00	0.76
UTTAR PRADESH	24.74	0.73
NJPC	24.34	0.71
CHANDIGARH	23.73	0.70
SAINJ HEP	19.97	0.59
GMR KAMALANGA	19.24	0.56
ILF&S	19.24	0.56
KARCHAM WANGTOO	18.50	0.54
GMR CHATTISGARH	18.32	0.54
JITPL	17.52	0.51
MIZORAM	17.25	0.51
DIKCHU HEP	17.11	0.50
JINDAL STAGE-II	16.99	0.50
HARYANA	15.88	0.47
GOA	15.25	0.45

SKS POWER	15.09	0.44
BRBCL,NABINAGAR	14.42	0.42
MANIPUR	12.50	0.37
NTPC STATIONS-NER	11.86	0.35
NEEPCO STATIONS	10.71	0.31
ONGC PALATANA	8.48	0.25
JHABUA POWER_MP	8.44	0.25
TAMIL NADU	6.74	0.20
MEGHALAYA	4.22	0.12
KERALA	4.01	0.12
ARUNACHAL PRADESH	3.32	0.10
NTPC STATIONS-SR	3.27	0.10
TASHIDENG HEP	3.16	0.09
JORETHANG	2.83	0.08
CHUZACHEN HEP	2.39	0.07
RANGANADI HEP	1.93	0.06
LANCO BUDHIL	1.27	0.04
NTPC STATIONS-NR	1.05	0.03
MALANA	0.72	0.02
PARE HEP	0.56	0.02
DHARIWAL POWER	0.49	0.01
DVC	0.38	0.01
EMCO	0.24	0.01
JHARKHAND	0.24	0.01
NTPC STATIONS-WR	0.22	0.01
DOYANG HEP	0.19	0.01
BALCO	0.15	0.00
NAGALAND	0.01	0.00
<b>TOTAL</b>	<b>3406.47</b>	<b>100.00</b>
<b>Volume sold by top 5 Regional Entities</b>	<b>1051.15</b>	<b>30.86</b>

<b>Table-12: VOLUME OF ELECTRICITY PURCHASED THROUGH POWER EXCHANGES, NOVEMBER 2018</b>		
<b>Name of the Entity</b>	<b>Volume of Purchase (MUs)</b>	<b>% of Volume</b>
GUJARAT	559.89	16.44
TELANGANA	526.50	15.46
MAHARASHTRA	379.23	11.13
ODISHA	268.07	7.87
BIHAR	242.39	7.12
DVC	206.19	6.05
TAMIL NADU	194.94	5.72
ESSAR STEEL	141.13	4.14
RAJASTHAN	108.26	3.18
KERALA	104.55	3.07
ANDHRA PRADESH	104.18	3.06
WEST BENGAL	98.14	2.88
KARNATAKA	92.04	2.70
PUNJAB	71.28	2.09
J & K	55.95	1.64
MP	47.28	1.39
ASSAM	41.71	1.22
UTTARAKHAND	35.39	1.04
HARYANA	32.86	0.96
HIMACHAL PRADESH	21.62	0.63
MEGHALAYA	19.21	0.56
DAMAN AND DIU	14.94	0.44
CHHATTISGARH	10.81	0.32
GOA	10.15	0.30
DELHI	10.07	0.30
UTTAR PRADESH	4.66	0.14
ARUNACHAL PRADESH	3.74	0.11
MANIPUR	0.70	0.02
CHANDIGARH	0.30	0.01
DADRA & NAGAR HAVELI	0.30	0.01
<b>TOTAL</b>	<b>3406.47</b>	<b>100.00</b>
<b>Volume purchased by top 5 Regional Entities</b>	<b>1976.08</b>	<b>58.01</b>

<b>Table-13: VOLUME OF ELECTRICITY UNDER DRAWAL (EXPORTED) THROUGH DSM, NOVEMBER 2018</b>		
<b>Name of the Entity</b>	<b>Volume of Underdrawal (MUs)</b>	<b>% of Volume</b>
NTPC STATIONS-WR	174.50	12.15
MAHARASHTRA	90.28	6.29
SASAN UMPP	82.66	5.75
MP	79.12	5.51
UTTAR PRADESH	71.29	4.96
J & K	70.48	4.91
NTPC STATIONS-NR	64.64	4.50
ANDHRA PRADESH	59.39	4.13
TAMIL NADU	50.01	3.48
BIHAR	47.76	3.32
KARNATAKA	37.98	2.64
RAJASTHAN	37.95	2.64
CHHATTISGARH	35.24	2.45
PUNJAB	32.05	2.23
HARYANA	28.45	1.98
GUJARAT	27.88	1.94
NLC	26.61	1.85
URI-2	25.06	1.74
NTPC STATIONS-ER	24.51	1.71
UTTARAKHAND	23.68	1.65
NTPC STATIONS-SR	23.40	1.63
ESSAR STEEL	20.18	1.40
DELHI	18.12	1.26
TELANGANA	16.79	1.17
NHPC STATIONS	16.74	1.17
JHARKHAND	15.44	1.08
TEESTA HEP	11.37	0.79
WEST BENGAL	10.79	0.75
NEEPCO STATIONS	10.49	0.73
NJPC	9.08	0.63
TRIPURA	8.74	0.61
HIMACHAL PRADESH	8.46	0.59
JAYPEE NIGRIE	7.11	0.49
ASSAM	7.08	0.49
LANKO_AMK	6.87	0.48
KERALA	6.81	0.47
GMR KAMALANGA	6.28	0.44
MEGHALAYA	6.26	0.44
MIZORAM	6.15	0.43
GOA	6.05	0.42
PONDICHERRY	5.57	0.39
EMCO	5.25	0.37
KARCHAM WANGTOO	4.91	0.34
NAGALAND	4.83	0.34
BRBCL,NABINAGAR	4.79	0.33
MAITHON POWER LTD	4.53	0.32



MB POWER	4.44	0.31
SIKKIM	4.19	0.29
ESSAR POWER	3.98	0.28
JINDAL STAGE-II	3.98	0.28
ODISHA	3.80	0.26
CGPL	3.60	0.25
DVC	3.47	0.24
BANGLADESH	3.32	0.23
KSK MAHANADI	3.25	0.23
JINDAL POWER	3.03	0.21
RKM POWER	2.93	0.20
TEESTA STG3	2.85	0.20
SEMBCORP	2.66	0.18
NETCL VALLUR	2.65	0.18
JHABUA POWER_MP	2.64	0.18
CHANDIGARH	2.60	0.18
JITPL	2.56	0.18
MANIPUR	2.55	0.18
NEPAL(NVVN)	2.46	0.17
DADRA & NAGAR HAVELI	2.37	0.16
NSPCL	2.16	0.15
DB POWER	1.99	0.14
TRN ENERGY	1.91	0.13
COASTGEN	1.90	0.13
RANGANADI HEP	1.88	0.13
ARUNACHAL PRADESH	1.84	0.13
DIKCHU HEP	1.60	0.11
GMR CHATTISGARH	1.58	0.11
LOKTAK	1.57	0.11
ADHUNIK POWER LTD	1.50	0.10
ILF&S	1.48	0.10
ACBIL	1.39	0.10
RGPPL (DABHOL)	1.30	0.09
ANGIT HEP	1.19	0.08
BALCO	1.19	0.08
CHUZACHEN HEP	0.96	0.07
JORETHANG	0.94	0.07
LANCO BUDHIL	0.74	0.05
DHARIWAL POWER	0.74	0.05
THERMAL POWERTECH	0.66	0.05
DAMAN AND DIU	0.65	0.05
TASHIDENG HEP	0.56	0.04
SHREE CEMENT	0.52	0.04
DOYANG HEP	0.35	0.02
SKS POWER	0.30	0.02
AD HYDRO	0.26	0.02
DCPP	0.24	0.02
MALANA	0.12	0.01
<b>TOTAL</b>	<b>1436.44</b>	<b>100.00</b>
<b>Volume Exported by top 5 Regional Entities</b>	<b>497.86</b>	<b>34.66</b>

<b>Table-14: VOLUME OF ELECTRICITY OVER DRAWAL (IMPORTED) THROUGH DSM, NOVEMBER 2018</b>		
<b>Name of the Entity</b>	<b>Volume of Overdrawal (MUs)</b>	<b>% of Volume</b>
ODISHA	105.38	6.26
RAJASTHAN	101.26	6.01
GUJARAT	91.85	5.45
DVC	88.48	5.25
NTPC STATIONS-WR	80.08	4.75
TELANGANA	72.76	4.32
WEST BENGAL	65.97	3.92
TAMIL NADU	58.32	3.46
NTPC STATIONS-NR	56.73	3.37
MAHARASHTRA	50.04	2.97
UTTAR PRADESH	49.34	2.93
KARNATAKA	47.99	2.85
HARYANA	47.99	2.85
NTPC STATIONS-ER	43.86	2.60
NTPC STATIONS-SR	42.75	2.54
ANDHRA PRADESH	34.37	2.04
PUNJAB	31.17	1.85
CGPL	30.89	1.83
MP	28.93	1.72
HIMACHAL PRADESH	28.40	1.69
KERALA	27.97	1.66
ESSAR STEEL	26.00	1.54
UTTARAKHAND	24.64	1.46
J & K	24.32	1.44
DELHI	22.24	1.32
DAGACHU	21.61	1.28
BIHAR	20.10	1.19
DAMAN AND DIU	19.69	1.17
GMR KAMALANGA	18.46	1.10
NLC	18.17	1.08
DADRA & NAGAR HAVELI	18.13	1.08
JHARKHAND	18.07	1.07
ASSAM	17.69	1.05
CHHATTISGARH	16.45	0.98
EMCO	15.25	0.91
NETCL VALLUR	14.57	0.87
DB POWER	11.97	0.71
CHANDIGARH	10.86	0.64
NEPAL(NVVN)	10.59	0.63
ARUNACHAL PRADESH	9.92	0.59
RGPL (DABHOL)	9.76	0.58
BANGLADESH	9.15	0.54
BALCO	8.74	0.52
GOA	8.42	0.50
ILF&S	7.15	0.42
ACBIL	6.71	0.40
SEBICORP	6.10	0.36
GMR CHATTISGARH	5.89	0.35
JHABUA POWER_MP	5.84	0.35

MAITHON POWER LTD	5.51	0.33
THERMAL POWERTECH	5.50	0.33
MANIPUR	5.38	0.32
SIKKIM	4.20	0.25
NAGALAND	4.04	0.24
NHPC STATIONS	3.95	0.23
MB POWER	3.52	0.21
JINDAL POWER	3.47	0.21
SHREE CEMENT	3.45	0.20
JINDAL STAGE-II	3.40	0.20
PONDICHERRY	3.32	0.20
ADHUNIK POWER LTD	3.18	0.19
TEESTA STG3	3.11	0.18
JORETHANG	3.07	0.18
TRIPURA	3.07	0.18
KARCHAM WANGTOO	2.73	0.16
SKS POWER	2.64	0.16
NJPC	2.59	0.15
NSPCL	2.53	0.15
ESSAR POWER	2.29	0.14
KSK MAHANADI	2.21	0.13
TASHIDENG HEP	2.17	0.13
RANGANADI HEP	1.99	0.12
TRN ENERGY	1.39	0.08
COASTGEN	1.38	0.08
NEEPCO STATIONS	1.35	0.08
MEGHALAYA	1.29	0.08
BRBCL,NABINAGAR	1.20	0.07
JITPL	1.13	0.07
MIZORAM	1.07	0.06
SIMHAPURI	0.77	0.05
SASAN UMPP	0.69	0.04
LANCO BUDHIL	0.66	0.04
JAYPEE NIGRIE	0.65	0.04
LANKO_AMK	0.63	0.04
LANKO KONDAPALLI	0.56	0.03
DIKCHU HEP	0.52	0.03
CHUZACHEN HEP	0.43	0.03
RKM POWER	0.34	0.02
KORBA WEST POWER	0.34	0.02
MEENAKSHI	0.27	0.02
MALANA	0.23	0.01
LOKTAK	0.23	0.01
URI-2	0.22	0.01
DOYANG HEP	0.21	0.01
RANGIT HEP	0.20	0.01
TEESTA HEP	0.17	0.01
DHARIWAL POWER	0.12	0.01
AD HYDRO	0.12	0.01
DCPP	0.09	0.01
<b>TOTAL</b>	<b>1684.60</b>	<b>100.00</b>
<b>Volume Imported by top 5 Regional Entities</b>	<b>467.05</b>	<b>27.72</b>

<b>Table-15: TOTAL VOLUME OF NET SHORT-TERM TRANSACTIONS OF ELECTRICITY (REGIONAL ENTITY-WISE), NOVEMBER 2018</b>		
<b>Sr.No.</b>	<b>Name of the Entity</b>	<b>Total volume of net short-term transactions of electricity*</b>
1	GUJARAT	1103.75
2	MP	813.78
3	ANDHRA PRADESH	710.68
4	MAHARASHTRA	614.83
5	ODISHA	416.42
6	TELANGANA	369.12
7	ESSAR STEEL	343.27
8	J & K	337.93
9	UTTARAKHAND	307.38
10	BANGLADESH	269.42
11	TAMIL NADU	221.19
12	BIHAR	221.09
13	JHARKHAND	114.14
14	HIMACHAL PRADESH	92.28
15	KERALA	67.30
16	NEPAL(NVVN)	65.17
17	ASSAM	48.35
18	CHHATTISGARH	40.92
19	MEGHALAYA	35.94
20	DAMAN AND DIU	33.98
21	GOA	28.23
22	CGPL	27.29
23	NTPC STATIONS-ER	19.35
24	NTPC STATIONS-SR	16.08
25	DVC	14.33
26	NETCL VALLUR	11.92
27	EMCO	9.75
28	MANIPUR	9.02
29	ARUNACHAL PRADESH	8.49
30	RGPL (DABHOL)	8.46
31	BALCO	7.40
32	THERMAL POWERTECH	4.85
33	WEST BENGAL	1.54
34	KSK MAHANADI	-1.04
35	DHARIWAL POWER	-1.10
36	LOKTAK	-1.34
37	LANCO BUDHIL	-1.35
38	RANGANADI HEP	-1.82
39	PONDICHERRY	-2.25
40	RKM POWER	-2.59
41	NTPC STATIONS-NR	-8.96
42	JHABUA POWER_MP	-9.92
43	TEESTA HEP	-11.19
44	GMR KAMALANGA	-11.31
45	NTPC STATIONS-NER	-12.00
46	NHPC STATIONS	-12.79
47	ILF&S	-13.58
48	CHANDIGARH	-15.17
49	LANKO_AMK	-15.76
50	CHUZACHEN HEP	-15.77

51	SKS POWER	-17.13
52	BRBCL,NABINAGAR	-18.02
53	DIKCHU HEP	-18.28
54	DAGACHU	-19.05
55	NEEPCO STATIONS	-19.85
56	SAINJ HEP	-19.97
57	KARCHAM WANGTOO	-20.68
58	JORETHANG	-21.44
59	TASHIDENG HEP	-22.71
60	MIZORAM	-24.14
61	URI-2	-24.84
62	JINDAL STAGE-II	-24.93
63	COASTGEN	-27.16
64	SIKKIM	-29.13
65	NJPC	-30.82
66	RAJASTHAN	-38.28
67	ACBIL	-45.58
68	MARUTI COAL	-47.30
69	SPECTRUM	-51.94
70	ONGC PALATANA	-54.73
71	JITPL	-68.01
72	MB POWER	-69.26
73	NLC	-76.44
74	SASAN UMPP	-81.97
75	TRN ENERGY	-88.80
76	NTPC STATIONS-WR	-94.64
77	JINDAL POWER	-96.71
78	SHREE CEMENT	-98.74
79	TRIPURA	-102.79
80	KARNATAKA	-111.55
81	DB POWER	-116.28
82	ADHUNIK POWER LTD	-133.62
83	UTTAR PRADESH	-140.65
84	TEESTA STG3	-223.25
85	JAYPEE NIGRIE	-233.33
86	GMR CHATTISGARH	-253.11
87	ESSAR POWER	-266.79
88	HARYANA	-507.86
89	SEMBCORP	-633.54
90	DELHI	-937.27
91	PUNJAB	-1093.94
* 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		

<b>Table-16: DETAILS OF CONGESTION IN POWER EXCHANGES, NOVEMBER 2018</b>			
	<b>Details of Congestion</b>	<b>IEX</b>	<b>PXIL</b>
A	Unconstrained Cleared Volume* (MUs)	3410.86	2.58
B	Actual Cleared Volume and hence scheduled (MUs)	3403.89	2.58
C	Volume of electricity that could not be cleared and hence not scheduled because of congestion (MUs) (A-B)	6.98	0.00
D	Volume of electricity that could not be cleared as % to Unconstrained Cleared Volume	0.20%	0.00%
E	Percentage of the time congestion occurred during the month (Number of hours congestion occurred/Total number of hours in the month)	4.76%	0.00%
F	Congestion occurrence (%) time block wise		
	0.00 - 6.00 hours	0.00%	0.00%
	6.00 - 12.00 hours	32.12%	0.00%
	12.00 - 18.00 hours	14.60%	0.00%
	18.00 - 24.00 hours	53.28%	0.00%
<i>* This power would have been scheduled had there been no congestion.</i>			
<i>Source: IEX &amp; PXIL &amp; NLDC</i>			

<b>Table-17: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY IN INDIA (DAY-WISE) (MUs), NOVEMBER 2018</b>						
<b>Date</b>	<b>Bilateral</b>		<b>Power Exchange (Area Clearing Volume# of Day Ahead Market)</b>		<b>Deviation Settlement (Over Drawl+Under Generation)</b>	<b>Total Electricity Generation (MU) as given at CEA Website*</b>
	<b>Through Traders and PXs**</b>	<b>Direct</b>	<b>IEX</b>	<b>PXIL</b>		
1-Nov-18	116.64	58.73	162.86	0.00	60.90	3574.45
2-Nov-18	111.25	53.77	172.67	0.00	56.63	3576.70
3-Nov-18	102.88	64.29	174.58	0.00	64.41	3517.71
4-Nov-18	95.10	66.38	142.90	0.00	64.63	3371.94
5-Nov-18	116.61	67.38	158.32	0.00	61.06	3490.76
6-Nov-18	118.25	67.76	133.19	0.00	56.37	3426.96
7-Nov-18	112.40	66.83	106.40	0.00	64.07	3176.22
8-Nov-18	107.71	66.59	101.41	0.00	55.75	3055.30
9-Nov-18	106.57	64.44	105.14	0.00	52.75	3180.30
10-Nov-18	104.18	65.28	112.81	0.00	51.15	3272.02
11-Nov-18	99.95	64.85	113.54	0.00	50.02	3257.30
12-Nov-18	96.70	64.59	119.97	0.00	53.00	3371.03
13-Nov-18	98.06	64.02	115.27	0.00	51.69	3409.41
14-Nov-18	96.64	64.46	113.09	0.00	52.03	3400.33
15-Nov-18	107.57	77.30	95.01	0.00	52.02	3358.00
16-Nov-18	115.34	77.58	93.06	0.00	53.66	3277.39
17-Nov-18	116.83	79.05	104.08	0.00	50.34	3333.14
18-Nov-18	114.07	77.13	94.73	0.00	49.71	3268.05
19-Nov-18	112.44	75.73	96.85	0.00	51.32	3352.37
20-Nov-18	113.63	74.91	89.15	0.00	59.69	3340.86
21-Nov-18	113.98	75.26	91.45	0.00	60.71	3335.02
22-Nov-18	117.03	75.98	89.07	0.00	61.41	3293.81
23-Nov-18	115.91	75.83	96.04	0.00	61.09	3261.09
24-Nov-18	113.85	75.92	101.00	0.00	54.25	3304.89
25-Nov-18	114.78	75.77	85.35	2.40	50.80	3217.37
26-Nov-18	113.32	75.51	103.76	0.09	51.03	3285.24
27-Nov-18	116.69	75.33	102.88	0.09	51.17	3304.01
28-Nov-18	114.82	66.89	113.93	0.00	48.63	3276.21
29-Nov-18	115.63	66.93	109.67	0.00	51.88	3301.63
30-Nov-18	110.78	66.62	105.69	0.00	49.97	3298.27
<b>Total</b>	<b>3309.61</b>	<b>2091.11</b>	<b>3403.89</b>	<b>2.58</b>	<b>1652.14</b>	<b>99887.78</b>
<i>Source: NLDC</i>						
<i>* Gross Electricity Generation excluding electricity generation from renewable 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>						

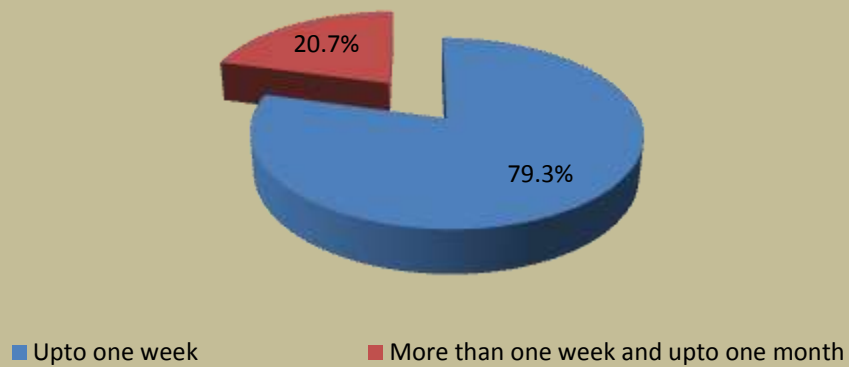
Table-18: PRICE OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (DAY-WISE)(₹/kWh), NOVEMBER 2018									
Market Segment	Day ahead market of IEX			Day ahead market of PXIL			Under Drawl/Over Drawl from the Grid (DSM)		
Date	Minimum ACP	Maximum ACP	Weighted Average Price*	Minimum ACP	Maximum ACP	Weighted Average Price*	All India Grid		
							Minimum Price	Maximum Price	Average Price**
1-Nov-18	3.10	19.99	4.90	-	-	-	0.00	3.45	2.08
2-Nov-18	3.66	8.74	5.19	-	-	-	0.00	4.91	2.28
3-Nov-18	3.55	11.09	5.05	-	-	-	0.00	5.11	2.57
4-Nov-18	3.03	5.63	4.27	-	-	-	0.00	4.91	2.48
5-Nov-18	3.02	8.72	4.67	-	-	-	0.00	5.95	2.51
6-Nov-18	3.00	7.01	3.96	-	-	-	0.00	3.45	1.82
7-Nov-18	1.50	4.97	3.17	-	-	-	0.00	3.24	1.49
8-Nov-18	1.79	8.35	2.90	-	-	-	0.00	3.45	1.96
9-Nov-18	1.96	4.62	3.18	-	-	-	0.00	3.45	2.23
10-Nov-18	2.40	9.10	3.56	-	-	-	0.00	4.91	2.37
11-Nov-18	2.50	4.75	3.31	-	-	-	0.00	5.11	2.29
12-Nov-18	2.02	5.10	3.53	-	-	-	0.00	5.95	2.10
13-Nov-18	2.17	5.20	3.52	-	-	-	0.00	5.11	2.18
14-Nov-18	2.00	5.00	3.62	-	-	-	0.00	5.95	2.44
15-Nov-18	2.00	5.06	3.62	-	-	-	0.00	5.74	2.17
16-Nov-18	2.00	9.71	3.78	-	-	-	0.00	3.45	2.23
17-Nov-18	2.11	5.61	3.76	-	-	-	0.00	5.11	2.49
18-Nov-18	2.00	4.31	3.29	-	-	-	0.00	3.45	2.18
19-Nov-18	1.92	6.17	3.66	-	-	-	0.36	5.32	2.23
20-Nov-18	2.00	5.49	3.42	-	-	-	0.00	3.45	1.80
21-Nov-18	2.01	5.04	3.32	-	-	-	0.00	5.11	2.25
22-Nov-18	2.00	6.00	3.46	-	-	-	0.00	3.45	1.62
23-Nov-18	2.30	6.02	3.58	-	-	-	0.00	5.11	2.40
24-Nov-18	2.18	6.74	3.72	-	-	-	0.36	5.74	2.74
25-Nov-18	2.35	4.31	3.42	3.30	3.30	3.30	0.00	3.45	1.90
26-Nov-18	2.25	6.83	3.57	4.50	4.50	4.50	0.00	5.32	1.91
27-Nov-18	2.33	5.50	3.50	4.50	4.50	4.50	0.00	5.32	2.14
28-Nov-18	2.21	6.84	3.67	-	-	-	0.00	3.45	1.89
29-Nov-18	2.07	6.50	3.36	-	-	-	0.00	5.32	2.64
30-Nov-18	2.07	6.90	3.49	-	-	-	0.00	6.16	2.54
	<b>1.50#</b>	<b>19.99#</b>	<b>3.82</b>	<b>3.30#</b>	<b>4.50#</b>	<b>3.38</b>	<b>0.00#</b>	<b>6.16#</b>	<b>2.20</b>
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									



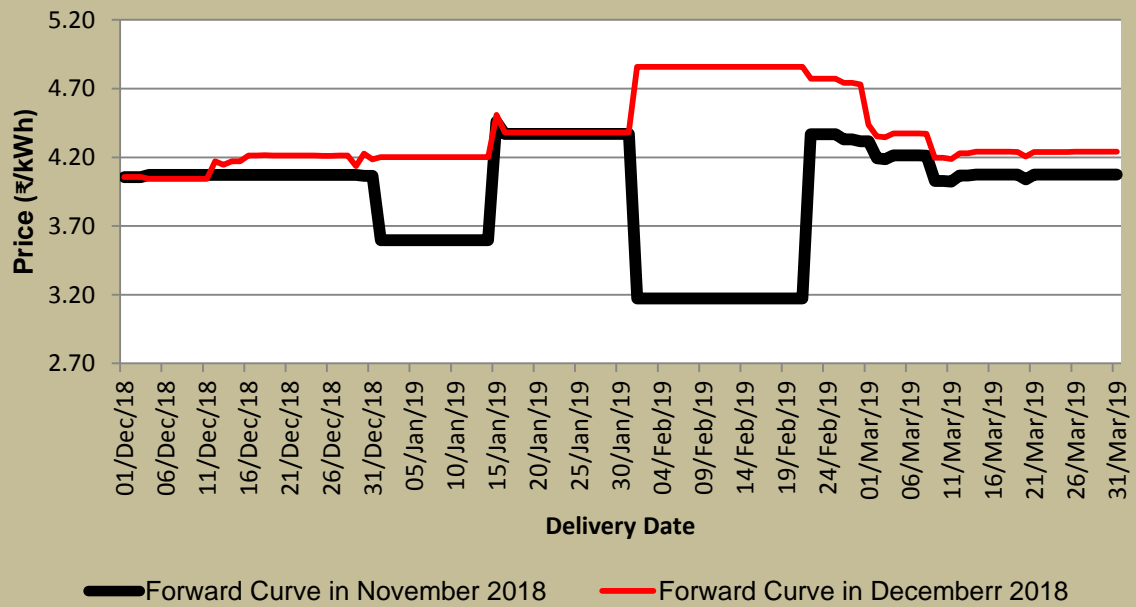
Table-19: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (REGIONAL ENTITY*-WISE) (MUs), NOVEMBER 2018										
Name of the Entity	Through Bilateral			Through Power Exchange			Through DSM with Regional Grid			Total Net***
	Sale	Purchase	Net**	Sale	Purchase	Net**	Import (Over Drawl)	Export (Under Drawl)	Net**	
PUNJAB	1138.34	0.00	-1138.34	26.00	71.28	45.28	31.17	32.05	-0.88	-1093.94
HARYANA	630.33	85.95	-544.38	15.88	32.86	16.98	47.99	28.45	19.53	-507.86
RAJASTHAN	53.24	21.33	-31.91	177.94	108.26	-69.68	101.26	37.95	63.31	-38.28
DELHI	666.15	15.60	-650.55	300.92	10.07	-290.85	22.24	18.12	4.13	-937.27
UTTAR PRADESH	199.15	100.54	-98.62	24.74	4.66	-20.07	49.34	71.29	-21.96	-140.65
UTTARAKHAND	41.67	367.33	325.65	54.62	35.39	-19.23	24.64	23.68	0.96	307.38
HIMACHAL PR	47.79	249.14	201.35	150.64	21.62	-129.01	28.40	8.46	19.95	92.28
J & K	25.79	384.84	359.05	30.91	55.95	25.03	24.32	70.48	-46.16	337.93
CHANDIGARH	0.00	0.00	0.00	23.73	0.30	-23.44	10.86	2.60	8.26	-15.17
MP	4.45	923.12	918.68	101.99	47.28	-54.71	28.93	79.12	-50.19	813.78
MAHARASHTRA	19.96	338.02	318.06	42.22	379.23	337.01	50.04	90.28	-40.24	614.83
GUJARAT	65.73	604.13	538.40	58.51	559.89	501.38	91.85	27.88	63.97	1103.75
CHHATTISGARH	226.80	357.44	130.64	81.73	10.81	-70.92	16.45	35.24	-18.79	40.92
GOA	0.00	30.96	30.96	15.25	10.15	-5.10	8.42	6.05	2.37	28.23
DAMAN AND DIU	0.00	0.00	0.00	0.00	14.94	14.94	19.69	0.65	19.04	33.98
DADRA & NAGAR	1.65	19.04	17.39	33.93	0.30	-33.63	18.13	2.37	15.76	-0.47
ANDHRA PR	159.10	866.02	706.92	75.41	104.18	28.77	34.37	59.39	-25.02	710.68
KARNATAKA	70.71	0.51	-70.20	143.41	92.04	-51.37	47.99	37.98	10.01	-111.55
KERALA	54.40	0.00	-54.40	4.01	104.55	100.54	27.97	6.81	21.16	67.30
TAMIL NADU	2.67	27.35	24.68	6.74	194.94	188.20	58.32	50.01	8.31	221.19
PONDICHERRY	0.00	0.00	0.00	0.00	0.00	0.00	3.32	5.57	-2.25	-2.25
TELANGANA	59.46	11.70	-47.76	165.60	526.50	360.91	72.76	16.79	55.97	369.12
WEST BENGAL	128.67	81.62	-47.06	104.73	98.14	-6.59	65.97	10.79	55.18	1.54
ODISHA	19.93	100.75	80.82	34.05	268.07	234.02	105.38	3.80	101.58	416.42
BIHAR	1.35	83.09	81.74	75.38	242.39	167.01	20.10	47.76	-27.66	221.09
JHARKHAND	0.00	111.75	111.75	0.24	0.00	-0.24	18.07	15.44	2.63	114.14
SIKKIM	0.00	0.00	0.00	29.14	0.00	-29.14	4.20	4.19	0.01	-29.13
DVC	285.78	9.28	-276.50	0.38	206.19	205.82	88.48	3.47	85.01	14.33
ARUNACHAL PR	0.00	0.00	0.00	3.32	3.74	0.42	9.92	1.84	8.07	8.49
ASSAM	0.00	50.19	50.19	54.16	41.71	-12.45	17.69	7.08	10.61	48.35
MANIPUR	0.00	18.00	18.00	12.50	0.70	-11.80	5.38	2.55	2.82	9.02
MEGHALAYA	0.00	25.92	25.92	4.22	19.21	14.99	1.29	6.26	-4.97	35.94
MIZORAM	1.81	0.00	-1.81	17.25	0.00	-17.25	1.07	6.15	-5.08	-24.14
NAGALAND	0.00	0.00	0.00	0.01	0.00	-0.01	4.04	4.83	-0.79	-0.80
TRIPURA	1.42	0.00	-1.42	95.70	0.00	-95.70	3.07	8.74	-5.67	-102.79
NTPC -NR	0.00	0.00	0.00	1.05	0.00	-1.05	56.73	64.64	-7.91	-8.96
NHPC STATIONS	0.00	0.00	0.00	0.00	0.00	0.00	3.95	16.74	-12.79	-12.79
NJPC	0.00	0.00	0.00	24.34	0.00	-24.34	2.59	9.08	-6.48	-30.82
AD HYDRO	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.26	-0.14	-0.14
KARCHAM WANG	0.00	0.00	0.00	18.50	0.00	-18.50	2.73	4.91	-2.19	-20.68
SHREE CEMENT	47.87	0.00	-47.87	53.80	0.00	-53.80	3.45	0.52	2.93	-98.74
LANCO BUDHIL	0.00	0.00	0.00	1.27	0.00	-1.27	0.66	0.74	-0.08	-1.35
MALANA	0.00	0.00	0.00	0.72	0.00	-0.72	0.23	0.12	0.12	-0.61
URI-2	0.00	0.00	0.00	0.00	0.00	0.00	0.22	25.06	-24.84	-24.84
SAINJ HEP	0.00	0.00	0.00	19.97	0.00	-19.97	0.00	0.00	0.00	-19.97
NTPC -WR	0.00	0.00	0.00	0.22	0.00	-0.22	80.08	174.50	-94.42	-94.64
JINDAL POWER	8.07	0.00	-8.07	89.08	0.00	-89.08	3.47	3.03	0.44	-96.71
LANCO_AMK	9.52	0.00	-9.52	0.00	0.00	0.00	0.63	6.87	-6.24	-15.76
NSPCL	0.00	0.00	0.00	0.00	0.00	0.00	2.53	2.16	0.37	0.37
ACBIL	0.73	0.00	-0.73	50.16	0.00	-50.16	6.71	1.39	5.32	-45.58
BALCO	0.00	0.00	0.00	0.15	0.00	-0.15	8.74	1.19	7.55	7.40
RGPL (DABHOL)	0.00	0.00	0.00	0.00	0.00	0.00	9.76	1.30	8.46	8.46
CGPL	0.00	0.00	0.00	0.00	0.00	0.00	30.89	3.60	27.29	27.29
EMCO	0.00	0.00	0.00	0.24	0.00	-0.24	15.25	5.25	10.00	9.75
ESSAR STEEL	0.00	196.32	196.32	0.00	141.13	141.13	26.00	20.18	5.82	343.27

KSK MAHANADI	0.00	0.00	0.00	0.00	0.00	0.00	2.21	3.25	-1.04	-1.04
ESSAR POWER	185.32	0.00	-185.32	79.78	0.00	-79.78	2.29	3.98	-1.69	-266.79
JINDAL STAGE-II	7.36	0.00	-7.36	16.99	0.00	-16.99	3.40	3.98	-0.58	-24.93
DB POWER	17.88	0.00	-17.88	108.38	0.00	-108.38	11.97	1.99	9.98	-116.28
DHARIWAL POWER	0.00	0.00	0.00	0.49	0.00	-0.49	0.12	0.74	-0.61	-1.10
JAYPEE NIGRIE	116.28	0.00	-116.28	110.59	0.00	-110.59	0.65	7.11	-6.46	-233.33
GMR CHATTISGAR	239.09	0.00	-239.09	18.32	0.00	-18.32	5.89	1.58	4.30	-253.11
KORBA WEST PO	0.00	0.00	0.00	0.00	0.00	0.00	0.34	0.00	0.34	0.34
MB POWER	12.63	0.00	-12.63	55.71	0.00	-55.71	3.52	4.44	-0.92	-69.26
MARUTI COAL	0.00	0.00	0.00	47.30	0.00	-47.30	0.00	0.00	0.00	-47.30
SPECTRUM	18.36	0.00	-18.36	33.58	0.00	-33.58	0.00	0.00	0.00	-51.94
JHABUA _MP	4.69	0.00	-4.69	8.44	0.00	-8.44	5.84	2.64	3.20	-9.92
SASAN UMPP	0.00	0.00	0.00	0.00	0.00	0.00	0.69	82.66	-81.97	-81.97
TRN ENERGY	8.81	0.00	-8.81	79.47	0.00	-79.47	1.39	1.91	-0.52	-88.80
RKM POWER	0.00	0.00	0.00	0.00	0.00	0.00	0.34	2.93	-2.59	-2.59
SKS POWER	4.38	0.00	-4.38	15.09	0.00	-15.09	2.64	0.30	2.35	-17.13
NTPC –SR	0.00	0.00	0.00	3.27	0.00	-3.27	42.75	23.40	19.35	16.08
LANKO KONDAPAL	0.00	0.00	0.00	0.00	0.00	0.00	0.56	0.00	0.56	0.56
MEENAKSHI	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.27	0.27
COASTGEN	26.64	0.00	-26.64	0.00	0.00	0.00	1.38	1.90	-0.52	-27.16
THERMAL POWER	0.00	0.00	0.00	0.00	0.00	0.00	5.50	0.66	4.85	4.85
ILF&S	0.00	0.00	0.00	19.24	0.00	-19.24	7.15	1.48	5.66	-13.58
NLC	0.00	0.00	0.00	68.00	0.00	-68.00	18.17	26.61	-8.43	-76.44
SEMBCORP	450.77	0.00	-450.77	186.21	0.00	-186.21	6.10	2.66	3.44	-633.54
NETCL VALLUR	0.00	0.00	0.00	0.00	0.00	0.00	14.57	2.65	11.92	11.92
NTPC –ER	0.00	0.00	0.00	0.00	0.00	0.00	43.86	24.51	19.35	19.35
MAITHON POWER	0.00	0.00	0.00	0.00	0.00	0.00	5.51	4.53	0.98	0.98
ADHUNIK POWER	135.31	0.00	-135.31	0.00	0.00	0.00	3.18	1.50	1.68	-133.62
CHUZACHEN HEP	12.84	0.00	-12.84	2.39	0.00	-2.39	0.43	0.96	-0.54	-15.77
RANGIT HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.20	1.19	-0.99	-0.99
GMR KAMALANGA	4.25	0.00	-4.25	19.24	0.00	-19.24	18.46	6.28	12.19	-11.31
JITPL	49.06	0.00	-49.06	17.52	0.00	-17.52	1.13	2.56	-1.43	-68.01
TEESTA HEP	0.00	0.00	0.00	0.00	0.00	0.00	0.17	11.37	-11.19	-11.19
DAGACHU	40.66	0.00	-40.66	0.00	0.00	0.00	21.61	0.00	21.61	-19.05
JORETHANG	20.75	0.00	-20.75	2.83	0.00	-2.83	3.07	0.94	2.13	-21.44
NEPAL(NVVN)	0.00	57.04	57.04	0.00	0.00	0.00	10.59	2.46	8.13	65.17
BANGLADESH	0.00	263.59	263.59	0.00	0.00	0.00	9.15	3.32	5.82	269.42
TEESTA STG3	3.03	0.00	-3.03	220.49	0.00	-220.49	3.11	2.85	0.26	-223.25
DIKCHU HEP	0.09	0.00	-0.09	17.11	0.00	-17.11	0.52	1.60	-1.08	-18.28
TASHIDENG HEP	21.15	0.00	-21.15	3.16	0.00	-3.16	2.17	0.56	1.61	-22.71
BRBCL,NABINAGAR	0.00	0.00	0.00	14.42	0.00	-14.42	1.20	4.79	-3.59	-18.02
NTPC –NER	0.14	0.00	-0.14	11.86	0.00	-11.86	0.00	0.00	0.00	-12.00
NEEPCO STN	0.00	0.00	0.00	10.71	0.00	-10.71	1.35	10.49	-9.14	-19.85
RANGANADI HEP	0.00	0.00	0.00	1.93	0.00	-1.93	1.99	1.88	0.11	-1.82
DOYANG HEP	0.00	0.00	0.00	0.19	0.00	-0.19	0.21	0.35	-0.14	-0.32
ONGC PALATANA	46.25	0.00	-46.25	8.48	0.00	-8.48	0.00	0.00	0.00	-54.73
LOKTAK	0.00	0.00	0.00	0.00	0.00	0.00	0.23	1.57	-1.34	-1.34
PAIRE HEP	0.00	0.00	0.00	0.56	0.00	-0.56	0.00	0.00	0.00	-0.56
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 December, 2018**



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



<b>Table-20 : VOLUME AND PRICE OF RENEWABLE ENERGY CERTIFICATES (RECs) TRANSACTED THROUGH POWER EXCHANGES, NOVEMBER 2018</b>					
<b>Sr.No.</b>	<b>Details of REC Transactions</b>	<b>IEX</b>		<b>PXIL</b>	
		<b>Solar</b>	<b>Non-Solar</b>	<b>Solar</b>	<b>Non Solar</b>
A	Volume of Buy Bid	852693	675109	706300	329196
B	Volume of Sell Bid	229140	546155	168139	167215
C	Ratio of Buy Bid to Sell Bid Volume	3.72	1.24	4.20	1.97
D	Market Clearing Volume (MWh)	32556	355657	26321	91204
E	Weighted average Market Clearing Price (₹/MWh)	1101	1252	1051	1260

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	<i>Floor Price (₹/MWh)</i>	<i>Forbearance Price (₹/MWh)</i>
	<i>Solar</i>	<i>1000.00</i>	<i>2500.00</i>
	<i>Non-Solar</i>	<i>1000.00</i>	<i>2900.00</i>