



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

December, 2015



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## Abbreviations

| Abbreviation     | Expanded Version                          |
|------------------|---|
| ACBIL            | ACB ( India) Limited                      |
| ACP              | Area Clearing Price                       |
| ACV              | Area Clearing Volume                      |
| 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                    |
| 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            |
| 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.           |
| KARCHAM WANGTOO  | Jaypee Karcham Hydro Corporation Limited  |
| KORBA WEST POWER | Korba West Power Company Limited          |
| KSK MAHANADI     | KSK Mahanadi Power Ltd                    |
| LANKO BUDHIL     | Lanco Budhil Hydro Power Private Limited  |
| LANKO AMK        | Lanco Amarkantak Power Private Limited    |
| LANKO KONDAPALLY | Lanco Kondapally Power Private Limited    |
| LOKTAK           | Loktak Power Project                      |
| MALANA           | Malana Hydroelectric Plant                |
| MB POWER         | MB Power Ltd                              |
| MEENAKSHI        | Meenakshi Energy Private Limited          |

|                   |   |
|-------------------|---|
| MP                | Madhya Pradesh  |
| MUs               | Million Units   |
| NHPC STATIONS     | National Hydro Electric Power Corporation Ltd. Stations |
| 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               |
| 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                                      |
| SHREE CEMENT      | Shree Cement Limited                                    |
| SIMHAPURI         | Simhapuri Energy Private Limited                        |
| SPECTRUM          | Spectrum Power Generation Ltd                           |
| STERLITE          | Sterlite Energy Limited                                 |
| TEESTA HEP        | Teesta Hydro Electric Power Project                     |
| THERMAL POWERTECH | Thermal Powertech Corporation India Limited             |
| URI2              | URI2 Hydro Power Project                                |
| UT                | Union Territory   |
| VANDANA VIDYUT    | Vandana Vidyut Limited                                  |

## 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 **December, 2015** are as under:

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

During December 2015, total electricity generation excluding generation from renewable and captive power plants in India was 89308.75 MUs (Table-1).

Of the total electricity generation, 9952.04 (11.14%) was transacted through short-term, comprising of 5294.69 MUs (5.93%) through bilateral (through traders and term-ahead contracts on power exchanges and directly between distribution companies), followed by 2991.30 MUs (3.35%) through day ahead collective transactions on power exchanges (IEX and PXIL) and 1666.05 MUs (1.87%) through DSM (Table-1 & Figure-2).

Of the total short-term transactions, bilateral constitutes 53.20% (30.19% through traders and term-ahead contracts on power exchanges and 23.01% directly between distribution companies) followed by 30.06% through day ahead collective transactions on power exchanges and 16.74% 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 44 trading licensees as on December, 2015. In December 2015, 20 trading licensees were engaged in short term trading. Top 5 trading licensees had a share of 75.33% in the total volume traded by all the licensees. These are PTC India Ltd., Mittal Processors (P) Ltd., Manikaran Power Ltd., JSW Power Trading Company Ltd., and Tata Power Trading Company (P) Ltd.

Herfindahl-Hirschman Index (HHI) has been used for measuring the competition among the trading licensees. Increase in the HHI generally indicates a decrease in competition and an increase of market concentration, and vice versa. The HHI below 0.15 indicates non-concentration, HHI between 0.15 to 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 0.1639 for the month of December 2015, which indicates moderate-concentration of market power (Table-2).

The volume of electricity transacted through IEX and PXIL in the day ahead market was 2986.79 MUs and 4.51 MUs respectively. The volume of total buy bids and sell bids was 3397.26 MUs and 4980.57 MUs respectively in IEX while the same was 23.15 MUs and 19.79 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 25.04 MUs and 24.68 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 ₹2.80/kWh, ₹7.99/kWh and ₹4.26/kWh respectively (Table-3). The weighted average sale prices were also computed for the transactions during Round

the Clock (RTC) and Off-Peak periods separately, and the sale prices were ₹5.42/kWh, and ₹2.92/kWh respectively (Table-4).

**(ii) Price of electricity transacted through Power Exchanges:** The minimum, maximum and weighted average prices have been computed for the electricity transacted through IEX and PXIL separately. The minimum, maximum and weighted average prices were ₹0.60/kWh, ₹8.01/kWh and ₹2.52/kWh respectively in IEX and ₹1.75/kWh, ₹6.01/kWh and ₹2.67/kWh respectively in PXIL (Table-5).

The price of electricity transacted through IEX and PXIL in the term-ahead market was ₹2.98/kWh and ₹2.66/kWh respectively (Table-6 and Table-7).

**(iii) Price of electricity transacted through DSM:** The average deviation settlement price was ₹2.05/kWh for all India grid. The minimum and maximum deviation settlement prices were ₹0.00/kWh and ₹6.36/kWh respectively in the all India grid (Table-8).

The prices of electricity transacted through trading licensees, power exchanges and DSM and their comparison is shown in Table-18 & 19, 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 49.56% of the volume, and these were Haryana, Punjab, Delhi, Thermal Powertech Corporation India Ltd. and GMR Kamalanga Energy Ltd. Top 5 regional entities purchased 45.84% of the volume, and these were Madhya Pradesh, Telangana, Jammu & Kashmir, Himachal Pradesh and Gujarat (Table-9 & 10).

Of the total power exchange transactions, top 5 regional entities sold 36.49% of the volume, and these were Jindal India Thermal Power Ltd, Maharashtra, GMR Chhattisgarh, Thermal Powertech Corporation India Ltd. and Jindal Power Ltd. Top 5 regional entities purchased 48.80% of the volume, and these were Rajasthan, Bihar, Gujarat, Delhi and Punjab (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 41.90% of the volume, and these were NTPC Stations (Western Region), Maharashtra, Jorethang, Uttar Pradesh and Gujarat (Table-13). Top 5 regional entities overdrew 35.71% of the volume, and these were Haryana, Jorethang, Punjab, NTPC Stations (Eastern Region), and Karnataka (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 Thermal Powertech Corporation India Ltd, Jindal India Thermal Power Ltd, GMR Kamalanga Energy Ltd, Jindal Power Ltd. and Delhi and Top 5 electricity purchasing regional entities were Telangana, Rajasthan, Bihar, Madhya Pradesh and Jammu & Kashmir.

#### **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 December 2015, congestion occurred in both the power exchanges. 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

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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.

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

During the month, the volume of electricity that could not be cleared in IEX and PXIL due to congestion was 1.79% and -5.51% of the unconstrained cleared volume respectively. In terms of time, congestion occurred was 52.02% in IEX and 31.72% in PXIL (Table-16).

## **V: Bilateral Contracts executed by Traders**

In addition to the analysis on short-term transactions of electricity in December 2015, this section covers an analysis of bilateral contracts executed in January, 2016.

**(i) Duration of bilateral contracts:** During January, 2016, a total of 37 bilateral contracts (excluding banking/swap contracts) have been executed by traders for the volume of 1487.15 MUs. Figure-7 shows the percentage of contracts categorized according to the period of power supply. It can be observed from the figure that 30% of the bilateral contracts were executed for duration of up to one week and 70% of the contracts were executed for duration of more than a week and upto one month.

During the month, 35 banking/swapping bilateral contracts were also executed for the volume of 2073.79 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 January, 2016 to May, 2016 based on bilateral contracts<sup>4</sup> executed till January, 2016. Forward curves have been drawn for the contracts executed in January, 2016 and December, 2015 for the purpose of comparison. It is observed that the forward prices from January, 2016

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

to May, 2016 were lower for the contracts executed in January, 2016 compared to the contracts executed in December, 2015.

## **VI: Volume and Price of Renewable Energy Certificates (RECs)**

The concept of Renewable Energy Certificates (RECs) seeks to address mismatch between availability of renewable energy and the requirement of the obligated entities to meet their renewable purchase obligation by purchasing green attributes of renewable energy remotely located in the form of RECs. The REC mechanism is a market based instrument, to promote renewable sources of energy and development of electricity market.

One REC is equivalent to 1 MWh electricity injected into the grid from renewable energy sources. The REC is exchanged only in the power exchanges approved by CERC within the band of a floor price and forbearance (ceiling) price as notified by CERC from time to time. The first REC trading session was held on power exchanges in March, 2011.

The details of REC transactions for the month of December, 2015 are shown in Table-20. The market clearing volume of solar RECs transacted on IEX and PXIL were 58682 and 2920 respectively and the market clearing price of these RECs was ₹3500/MWh on both the power exchanges. Market clearing volume of non-solar RECs transacted on IEX and PXIL were 806993 and 91446 respectively and the market clearing price of these RECs was ₹1500/MWh on both the power exchanges.

The gap between the volume of buy and sell bids of RECs placed through power exchanges shows that there was less demand for both solar and non-solar RECs. For Solar RECs, the ratio of buy bids to sell bids was 0.03 and 0.004 for IEX and PXIL respectively. For non-solar RECs, the ratio of buy bids to sell bids was 0.08 for IEX and 0.02 for PXIL.

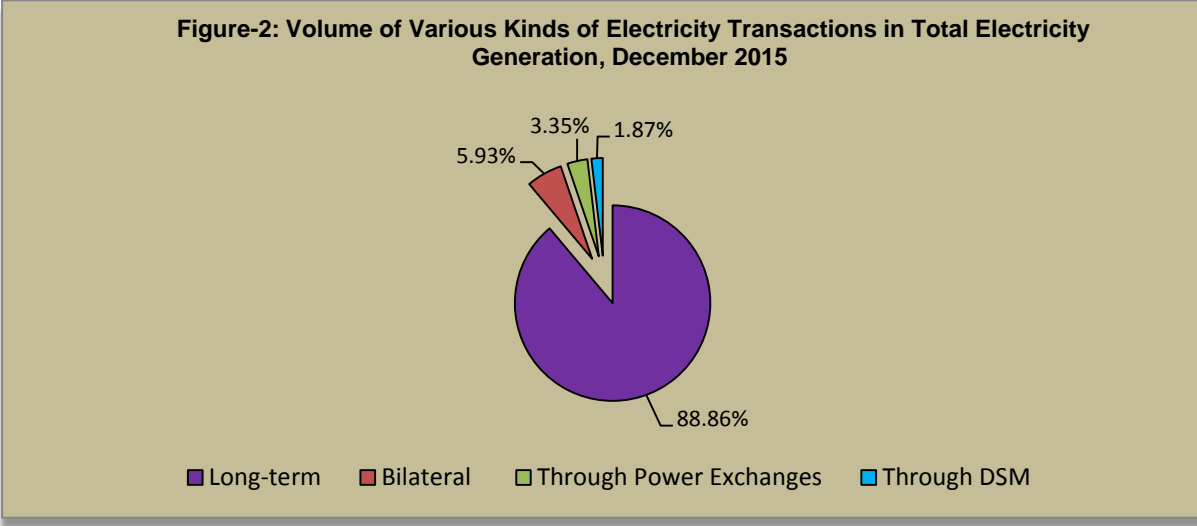
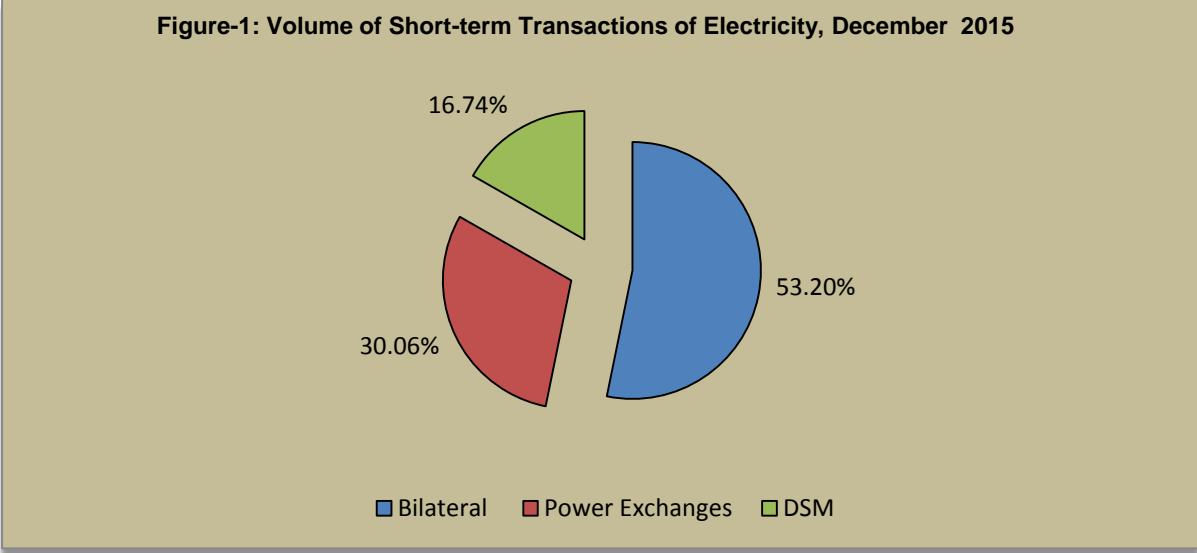
## VII: Inferences:

- The percentage of short-term transactions of electricity to total electricity generation was 11.14%.
- Of the total short-term transactions of electricity, 53.20% was transacted through bilateral (through traders and term ahead contracts on power exchanges and directly by distribution companies), followed by 30.06% through power exchanges and 16.74% through DSM.
- Top 5 trading licensees had a share of 75.33 % 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 0.1639, indicating moderate-concentration of market power.
- The weighted average price of electricity transacted through trading licensees was ₹4.26/kWh. The weighted average prices of electricity transacted through IEX and PXIL were ₹2.52/kWh and ₹2.67/kWh respectively.
- The average price of electricity transacted through DSM was ₹2.05/kWh
- Top 5 electricity selling regional entities were Thermal Powertech Corporation India Ltd, Jindal India Thermal Power Ltd, GMR Kamalanga Energy Ltd, Jindal Power Ltd. and Delhi. Top 5 electricity purchasing regional entities were Telangana, Rajasthan, Bihar, Madhya Pradesh and Jammu & Kashmir.
- The volume of electricity that could not be cleared due to congestion was 1.79% and - 5.51% of the unconstrained cleared volume for IEX and PXIL, respectively. In terms of time, congestion occurred was 52.02% of the time in IEX and 31.72% of the time in PXIL.
- In January 2016, 30% of the bilateral contracts were executed for duration of up to one week and 70% of the contracts were executed for duration of more than a week.
- The forward prices from January, 2016 to May, 2016 were lower for the contracts executed in January, 2016 compared to the contracts executed in December, 2015.

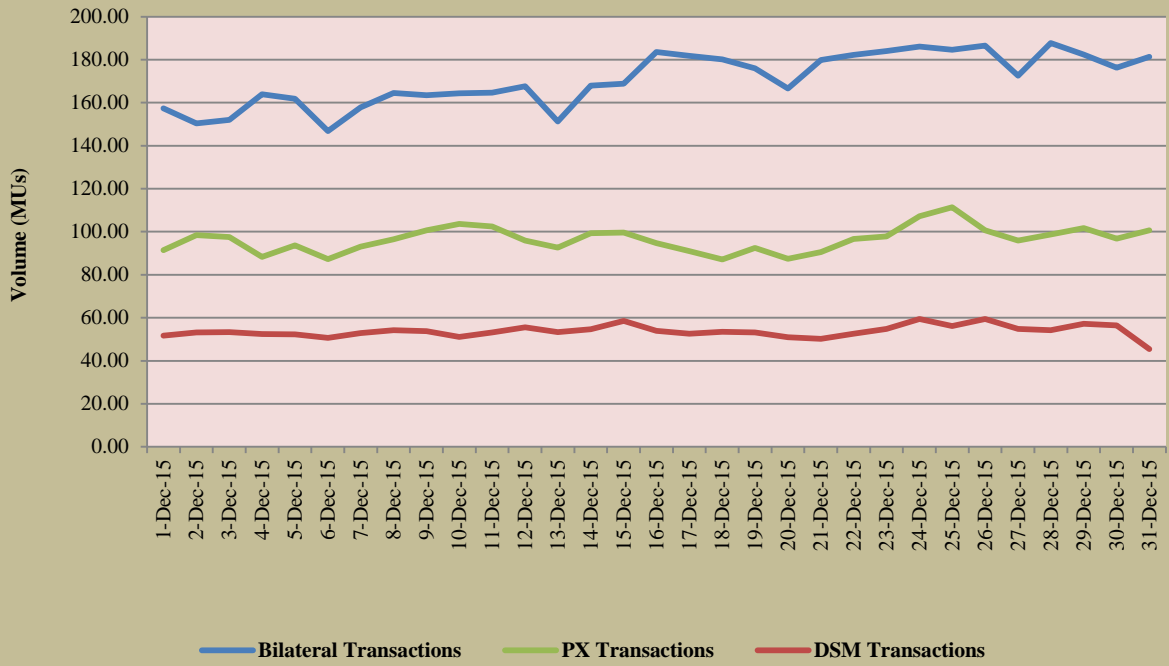
- The market clearing volume of solar RECs transacted on IEX and PXIL were 58682 and 2920 respectively and the market clearing price of these RECs was ₹3500/MWh on both the power exchanges. Market clearing volume of non-solar RECs transacted on IEX and PXIL were 806993 and 91446 respectively and the market clearing price of these RECs was ₹1500/MWh on both the power exchanges.

| Table-1: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (ALL INDIA), DECEMBER 2015 |                             |                 |  |                       |
|--|-----------------------------|-----------------|--|-----------------------|
| Sr.No  | Short-term transactions     | Volume (MUs)    | % to Volume of short-term transactions | % to Total Generation |
| 1  | Bilateral                   | 5294.69         | 53.20                                  | 5.93                  |
|  | (i) Through Traders and PXs | 3004.42         | 30.19                                  | 3.36                  |
|  | (ii) Direct                 | 2290.28         | 23.01                                  | 2.56                  |
| 2  | Through Power Exchanges     | 2991.30         | 30.06                                  | 3.35                  |
|  | (i) IEX                     | 2986.79         | 30.01                                  | 3.34                  |
|  | (ii) PXIL                   | 4.51            | 0.05                                   | 0.01                  |
| 3  | Through DSM                 | 1666.05         | 16.74                                  | 1.87                  |
|  | <b>Total</b>                | <b>9952.04</b>  | <b>-</b>                               | <b>11.14</b>          |
|  | <b>Total Generation</b>     | <b>89308.75</b> | <b>-</b>                               | <b>-</b>              |

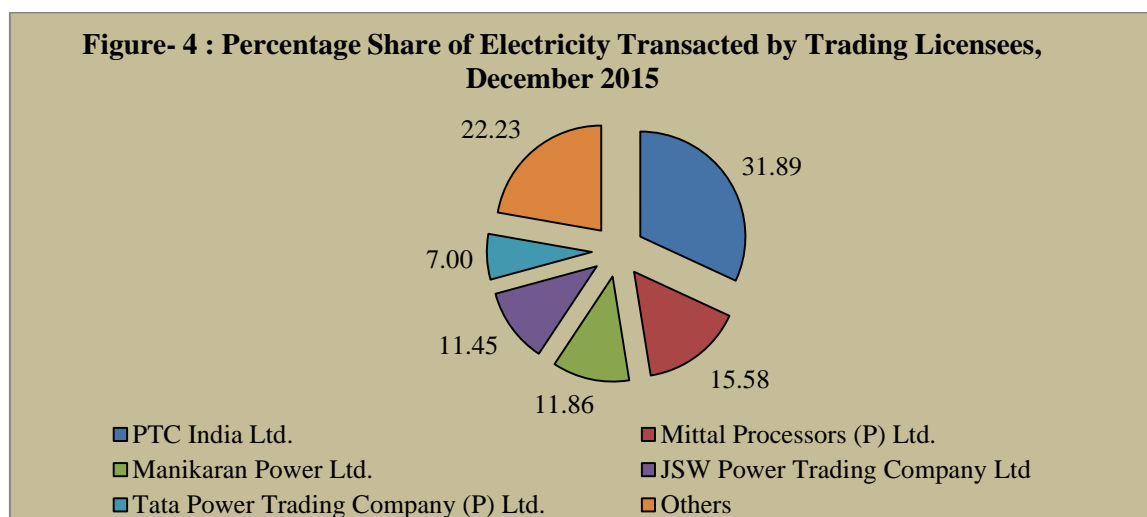
Source: NLDC



**Figure-3: Volume of Short-term Transactions of Electricity, December 2015 (Day-wise)**



| <b>Table-2: PERCENTAGE SHARE OF ELECTRICITY TRANSACTED BY TRADING LICENSEES, DECEMBER 2015</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.                              | 31.89  | 0.1017                            |
| 2   | Mittal Processors (P) Ltd.                  | 15.58  | 0.0243                            |
| 3   | Manikaran Power Ltd.                        | 11.86  | 0.0141                            |
| 4   | JSW Power Trading Company Ltd               | 11.45  | 0.0131                            |
| 5   | Tata Power Trading Company (P) Ltd.         | 7.00   | 0.0049                            |
| 6   | GMR Energy Trading Ltd.                     | 4.53   | 0.0021                            |
| 7   | NTPC Vidyut Vyapar Nigam Ltd.               | 3.00   | 0.0009                            |
| 8   | Arunachal Pradesh Power Corporation (P) ltd | 2.98   | 0.0009                            |
| 9   | Adani Enterprises Ltd.                      | 2.94   | 0.0009                            |
| 10  | Jaiprakash Associates Ltd.                  | 1.91   | 0.0004                            |
| 11  | Knowledge Infrastructure Systems (P) Ltd    | 1.86   | 0.0003                            |
| 12  | Instinct Infra & Power Ltd.                 | 1.51   | 0.0002                            |
| 13  | RPG Power Trading Company Ltd.              | 1.01   | 0.0001                            |
| 14  | Shree Cement Ltd.                           | 0.78   | 0.0001                            |
| 15  | National Energy Trading & Services Ltd.     | 0.59   | 0.0000                            |
| 16  | Essar Electric Power Development Corp. Ltd. | 0.31   | 0.0000                            |
| 17  | SN Power Markets Pvt. Ltd.                  | 0.28   | 0.0000                            |
| 18  | My Home Power Private Ltd.                  | 0.25   | 0.0000                            |
| 19  | Customized Energy Solutions India (P) Ltd.  | 0.20   | 0.0000                            |
| 20  | Ambitious Power Trading Company Ltd.        | 0.06   | 0.0000                            |
| <b>TOTAL</b>  |   | <b>100.00%</b>   | <b>0.1639</b>                     |
| <b>Top 5 trading licensees</b>  |   | <b>75.33%</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 Ltd is not included.</i>   |   |  |                                   |
| <i>Source: Information submitted by trading licensees</i>   |   |  |                                   |





| Table-3: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS, DECEMBER 2015 |                  |                               |
|---|------------------|-------------------------------|
| Sr.No   | Item             | Sale Price of Traders (₹/kWh) |
| 1   | Minimum          | 2.8                           |
| 2   | Maximum          | 7.99                          |
| 3   | Weighted Average | 4.26                          |

Source: Information submitted by trading licensees

| Table-4: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS (TIME-WISE), DECEMBER 2015 |                 |                               |
|---|-----------------|-------------------------------|
| Sr.No   | Period of Trade | Sale Price of Traders (₹/kWh) |
| 1   | RTC             | 5.42                          |
| 2   | PEAK            | -                             |
| 3   | OFF PEAK        | 2.92                          |

Source: Information submitted by trading licensees

| Table-5: PRICE OF ELECTRICITY TRANSACTED THROUGH POWER EXCHANGES, DECEMBER 2015 |                  |                      |                       |
|---|------------------|----------------------|-----------------------|
| Sr.No   | ACP              | Price in IEX (₹/kWh) | Price in PXIL (₹/kWh) |
| 1   | Minimum          | 0.60                 | 1.75                  |
| 2   | Maximum          | 8.01                 | 6.01                  |
| 3   | Weighted Average | 2.52                 | 2.67                  |

Source: Information submitted by IEX and PXIL

| Table-6: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF IEX, DECEMBER 2015 |                                 |                               |                                |
|---|---------------------------------|-------------------------------|--------------------------------|
| Sr.No   | Term ahead contracts            | Actual Scheduled Volume (MUs) | Weighted Average Price (₹/kWh) |
| 1   | Intra-Day Contracts             | 20.00                         | 3.03                           |
| 2   | Day Ahead Contingency Contracts | 5.05                          | 2.80                           |
|   | <b>Total</b>                    | <b>25.04</b>                  | <b>2.98</b>                    |

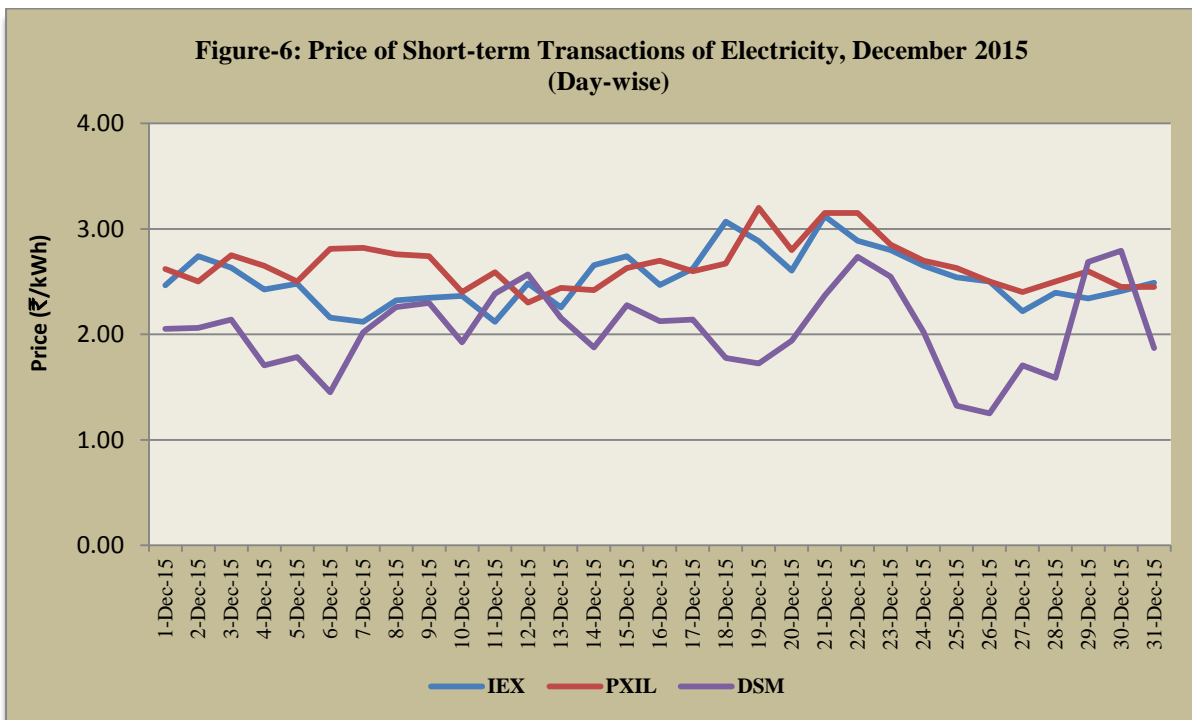
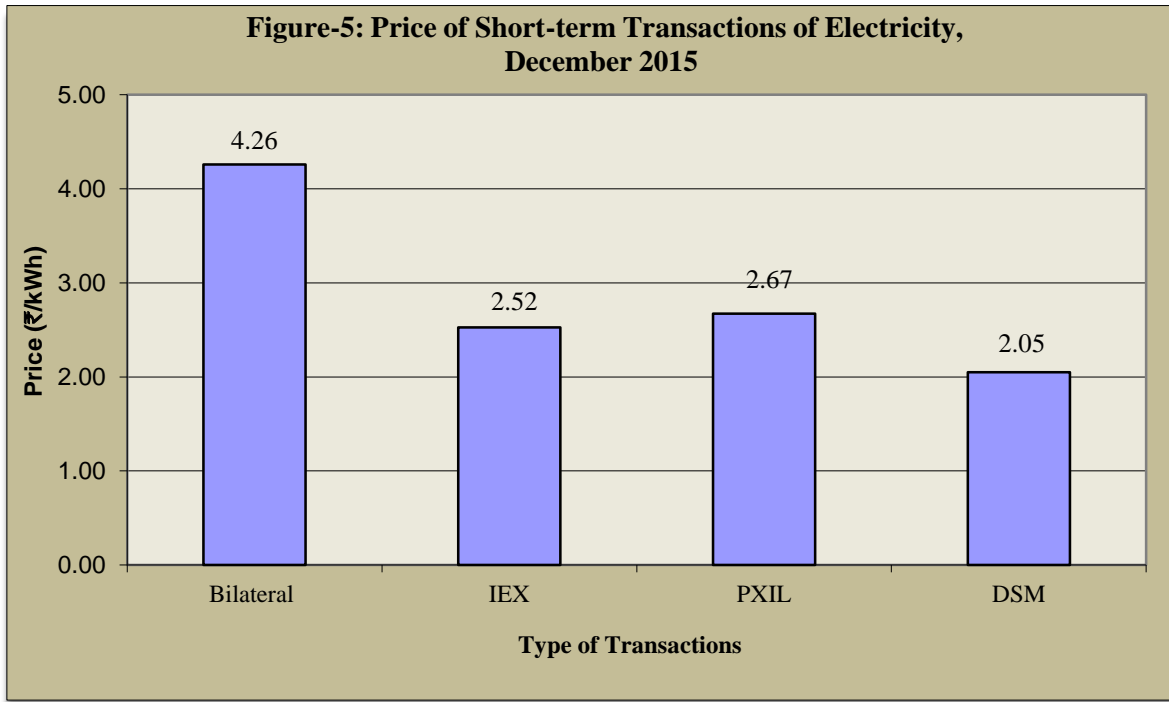
Source: IEX

| Table-7: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF PXIL, DECEMBER 2015 |                      |                               |                                |
|--|----------------------|-------------------------------|--------------------------------|
| Sr.No  | Term ahead contracts | Actual Scheduled Volume (MUs) | Weighted Average Price (₹/kWh) |
| 1  | Intra-Day Contracts  | 24.68                         | 2.66                           |
|  | <b>Total</b>         | <b>24.68</b>                  | <b>2.66</b>                    |

Source: PXIL

| Table-8: PRICE OF ELECTRICITY TRANSACTED THROUGH DSM, DECEMBER 2015 |         |                                 |
|---|---------|---------------------------------|
| Sr.No   | Item    | Price in All India Grid (₹/kWh) |
| 1   | Minimum | 0.00                            |
| 2   | Maximum | 6.36                            |
| 3   | Average | 2.05                            |

Source: NLDC



| <b>Table-9: VOLUME OF ELECTRICITY SOLD THROUGH BILATERAL, DECEMBER 2015</b> |                             |                    |
|---|-----------------------------|--------------------|
| <b>Name of the State/UT/Other Regional Entity</b>                           | <b>Volume of Sale (MUs)</b> | <b>% of Volume</b> |
| HARYANA   | 604.05                      | 12.39              |
| PUNJAB  | 527.13                      | 10.81              |
| DELHI   | 522.05                      | 10.71              |
| THERMAL POWERTECH   | 405.37                      | 8.31               |
| GMR KAMALANGA   | 358.25                      | 7.35               |
| JINDAL POWER  | 208.09                      | 4.27               |
| UTTAR PRADESH   | 199.02                      | 4.08               |
| WEST BENGAL   | 185.90                      | 3.81               |
| GUJARAT   | 175.30                      | 3.59               |
| SIMHAPURI   | 174.92                      | 3.59               |
| CHHATTISGARH  | 134.90                      | 2.77               |
| HIMACHAL PRADESH  | 131.35                      | 2.69               |
| LANKO KONDAPALLI  | 131.17                      | 2.69               |
| JORETHANG   | 131.17                      | 2.69               |
| RAJASTHAN   | 128.06                      | 2.63               |
| SHREE CEMENT  | 122.93                      | 2.52               |
| JITPL   | 99.82                       | 2.05               |
| MEENAKSHI   | 91.46                       | 1.88               |
| ADHUNIK POWER LTD   | 90.75                       | 1.86               |
| ANDHRA PRADESH  | 88.22                       | 1.81               |
| STERLITE  | 86.40                       | 1.77               |
| DB POWER  | 37.90                       | 0.78               |
| JINDAL STAGE-II   | 29.13                       | 0.60               |
| ACBIL   | 26.19                       | 0.54               |
| MAHARASHTRA   | 25.64                       | 0.53               |
| NSPCL   | 23.21                       | 0.48               |
| ODISHA  | 21.97                       | 0.45               |
| TRIPURA   | 21.81                       | 0.45               |
| DVC   | 18.84                       | 0.39               |
| DAGACHU   | 15.77                       | 0.32               |
| J & K   | 14.06                       | 0.29               |
| KORBA WEST POWER  | 11.64                       | 0.24               |
| TELANGANA   | 10.09                       | 0.21               |
| CHANDIGARH  | 7.44                        | 0.15               |
| MP  | 7.11                        | 0.15               |
| MEGHALAYA   | 5.83                        | 0.12               |
| GMR CHHATTISGARH  | 3.23                        | 0.07               |
| EMCO  | 0.56                        | 0.01               |
| <b>Total</b>  | <b>4876.70</b>              | <b>100.00</b>      |
| <b>Volume Sold by top 5 Regional Entities</b>                               | <b>2416.85</b>              | <b>49.56</b>       |

**Table-10: VOLUME OF ELECTRICITY PURCHASED THROUGH BILATERAL,  
DECEMBER 2015**

| <b>Name of the State/UT/Other Regional Entity</b>  | <b>Volume of Purchase (MUs)</b> | <b>% of Volume</b> |
|--|---------------------------------|--------------------|
| MP   | 612.70                          | 11.57              |
| TELANGANA  | 580.03                          | 10.95              |
| J & K  | 451.56                          | 8.53               |
| HIMACHAL PRADESH                                   | 397.10                          | 7.50               |
| GUJARAT  | 385.71                          | 7.28               |
| CHHATTISGARH                                       | 385.34                          | 7.28               |
| ANDHRA PRADESH                                     | 343.28                          | 6.48               |
| HARYANA  | 325.41                          | 6.15               |
| BIHAR  | 263.95                          | 4.99               |
| RAJASTHAN  | 263.61                          | 4.98               |
| MAHARASHTRA  | 252.61                          | 4.77               |
| WEST BENGAL  | 174.24                          | 3.29               |
| KERALA   | 155.33                          | 2.93               |
| UTTARAKHAND  | 154.14                          | 2.91               |
| UTTAR PRADESH                                      | 146.55                          | 2.77               |
| ODISHA   | 123.05                          | 2.32               |
| JHARKHAND  | 91.22                           | 1.72               |
| MEGHALAYA  | 55.96                           | 1.06               |
| ESSAR STEEL  | 43.14                           | 0.81               |
| MANIPUR  | 23.86                           | 0.45               |
| ASSAM  | 21.65                           | 0.41               |
| DADRA & NAGAR HAVELI                               | 16.51                           | 0.31               |
| DELHI  | 15.67                           | 0.30               |
| PUNJAB   | 5.45                            | 0.10               |
| GOA  | 3.72                            | 0.07               |
| TAMILNADU  | 2.91                            | 0.05               |
| <b>TOTAL</b>                                       | <b>5294.69</b>                  | <b>100.00</b>      |
| <b>Volume Purchased by top 5 Regional Entities</b> | <b>2427.10</b>                  | <b>45.84</b>       |

**Table-11: VOLUME OF ELECTRICITY SOLD THROUGH POWER EXCHANGES, DECEMBER 2015**

| <b>Name of the State/UT/Other Regional Entity</b> | <b>Volume of Sale (MUs)</b> | <b>% of Volume</b> |
|---|-----------------------------|--------------------|
| JITPL   | 412.14                      | 13.27              |
| MAHARASHTRA                                       | 188.68                      | 6.07               |
| GMR CHHATTISGARH                                  | 184.27                      | 5.93               |
| THERMAL POWERTECH                                 | 182.84                      | 5.89               |
| JINDAL POWER                                      | 165.55                      | 5.33               |
| ADHUNIK POWER LTD                                 | 143.64                      | 4.62               |
| JORETHANG   | 131.17                      | 4.22               |
| DB POWER  | 124.89                      | 4.02               |
| MP  | 119.76                      | 3.86               |
| DCPP  | 114.39                      | 3.68               |
| GUJARAT   | 106.71                      | 3.44               |
| HIMACHAL PRADESH                                  | 93.99                       | 3.03               |
| KORBA WEST POWER                                  | 82.90                       | 2.67               |
| TRIPURA   | 80.83                       | 2.60               |
| ODISHA  | 76.52                       | 2.46               |
| STERLITE  | 75.55                       | 2.43               |
| SIMHAPURI   | 70.62                       | 2.27               |
| KARCHAM WANGTOO                                   | 69.16                       | 2.23               |
| JAYPEE NIGRIE                                     | 63.02                       | 2.03               |
| WEST BENGAL                                       | 60.41                       | 1.94               |
| CHHATTISGARH                                      | 55.99                       | 1.80               |
| JINDAL STAGE-II                                   | 49.71                       | 1.60               |
| TELANGANA   | 41.96                       | 1.35               |
| SHREE CEMENT                                      | 37.86                       | 1.22               |
| MAITHON POWER LTD                                 | 33.70                       | 1.09               |
| DVC   | 28.78                       | 0.93               |
| GMR KAMALANGA                                     | 27.35                       | 0.88               |
| ACBIL   | 25.30                       | 0.81               |
| NJPC  | 25.15                       | 0.81               |
| DHARIWAL POWER                                    | 22.10                       | 0.71               |
| RAJASTHAN   | 21.99                       | 0.71               |
| J & K   | 20.41                       | 0.66               |
| DELHI   | 19.53                       | 0.63               |
| MEENAKSHI   | 18.14                       | 0.58               |
| AD HYDRO  | 15.50                       | 0.50               |
| MANIPUR   | 15.36                       | 0.49               |
| SPECTRUM  | 13.78                       | 0.44               |
| CHUZACHEN HEP                                     | 12.77                       | 0.41               |
| NHPC STATIONS                                     | 12.69                       | 0.41               |
| SIKKIM  | 12.06                       | 0.39               |
| HARYANA   | 8.77                        | 0.28               |
| GOA   | 8.02                        | 0.26               |
| KERALA  | 7.15                        | 0.23               |
| BALCO   | 6.78                        | 0.22               |

|   |                |               |
|---|----------------|---------------|
| MEGHALAYA                                     | 4.67           | 0.15          |
| ASSAM   | 4.20           | 0.14          |
| CHANDIGARH                                    | 3.13           | 0.10          |
| ANDHRA PRADESH                                | 2.66           | 0.09          |
| MIZORAM                                       | 1.85           | 0.06          |
| EMCO  | 0.74           | 0.02          |
| LANCO BUDHIL                                  | 0.72           | 0.02          |
| MALANA  | 0.01           | 0.00          |
| <b>Total</b>                                  | <b>3105.88</b> | <b>100.00</b> |
| <b>Volume sold by top 5 Regional Entities</b> | <b>1133.48</b> | <b>36.49</b>  |

**Table-12: VOLUME OF ELECTRICITY PURCHASED THROUGH POWER EXCHANGES,  
DECEMBER 2015**

| <b>Name of the State/UT/Other Regional Entity</b>  | <b>Volume of Purchase (MUs)</b> | <b>% of Volume</b> |
|--|---------------------------------|--------------------|
| RAJASTHAN  | 504.73                          | 16.16              |
| BIHAR  | 317.92                          | 10.18              |
| GUJARAT  | 241.83                          | 7.74               |
| DELHI  | 236.71                          | 7.58               |
| PUNJAB   | 222.69                          | 7.13               |
| HARYANA  | 206.16                          | 6.60               |
| UTTARAKHAND  | 205.53                          | 6.58               |
| ESSAR STEEL  | 164.26                          | 5.26               |
| KARNATAKA  | 153.26                          | 4.91               |
| JORETHANG  | 131.17                          | 4.20               |
| TELANGANA  | 117.46                          | 3.76               |
| DADRA & NAGAR HAVELI                               | 97.69                           | 3.13               |
| ANDHRA PRADESH                                     | 80.44                           | 2.58               |
| HIMACHAL PRADESH                                   | 57.43                           | 1.84               |
| ODISHA   | 52.04                           | 1.67               |
| WEST BENGAL  | 51.34                           | 1.64               |
| KERALA   | 51.04                           | 1.63               |
| ASSAM  | 49.18                           | 1.58               |
| DAMAN AND DIU                                      | 37.04                           | 1.19               |
| MEGHALAYA  | 26.82                           | 0.86               |
| GOA  | 22.82                           | 0.73               |
| MP   | 20.63                           | 0.66               |
| MAHARASHTRA  | 17.14                           | 0.55               |
| J & K  | 13.89                           | 0.44               |
| CHHATTISGARH                                       | 11.71                           | 0.37               |
| TAMILNADU  | 11.66                           | 0.37               |
| NAGALAND   | 9.62                            | 0.31               |
| ARUNACHAL PRADESH                                  | 5.30                            | 0.17               |
| CHANDIGARH   | 3.45                            | 0.11               |
| MIZORAM  | 1.19                            | 0.04               |
| MANIPUR  | 0.32                            | 0.01               |
| <b>TOTAL</b>                                       | <b>3122.47</b>                  | <b>100.00</b>      |
| <b>Volume purchased by top 5 Regional Entities</b> | <b>1523.87</b>                  | <b>48.80</b>       |

**Table-13: VOLUME OF ELECTRICITY UNDER DRAWAL (EXPORTED) THROUGH DSM, DECEMBER 2015**

| <b>Name of the State/UT/Other Regional Entity</b> | <b>Volume of Under drawal (MUs)</b> | <b>% of Volume</b> |
|---|-------------------------------------|--------------------|
| NTPC STATIONS-WR                                  | 177.51                              | 11.13              |
| MAHARASHTRA                                       | 173.44                              | 10.87              |
| JORETHANG   | 131.17                              | 8.22               |
| UTTAR PRADESH                                     | 98.12                               | 6.15               |
| GUJARAT   | 88.15                               | 5.53               |
| MP  | 86.87                               | 5.45               |
| TAMILNADU   | 80.65                               | 5.06               |
| NHPC STATIONS                                     | 69.99                               | 4.39               |
| NTPC STATIONS-NR                                  | 61.69                               | 3.87               |
| PUNJAB  | 53.43                               | 3.35               |
| RAJASTHAN   | 47.13                               | 2.95               |
| TELANGANA   | 41.82                               | 2.62               |
| DVC   | 38.74                               | 2.43               |
| KARNATAKA   | 35.93                               | 2.25               |
| ANDHRA PRADESH                                    | 33.73                               | 2.11               |
| BIHAR   | 32.89                               | 2.06               |
| ODISHA  | 26.94                               | 1.69               |
| HARYANA   | 26.80                               | 1.68               |
| CHHATTISGARH                                      | 26.28                               | 1.65               |
| NTPC STATIONS-ER                                  | 25.51                               | 1.60               |
| WEST BENGAL                                       | 24.78                               | 1.55               |
| DELHI   | 18.66                               | 1.17               |
| HIMACHAL PRADESH                                  | 15.55                               | 0.97               |
| NTPC STATIONS-SR                                  | 14.13                               | 0.89               |
| GOA   | 13.14                               | 0.82               |
| JITPL   | 11.16                               | 0.70               |
| THERMAL POWERTECH                                 | 10.64                               | 0.67               |
| DADRA & NAGAR HAVELI                              | 9.63                                | 0.60               |
| JHARKHAND   | 8.78                                | 0.55               |
| MAITHON POWER LTD                                 | 8.75                                | 0.55               |
| NJPC  | 8.57                                | 0.54               |
| UTTARAKHAND                                       | 8.49                                | 0.53               |
| NEEPCO STATIONS                                   | 7.90                                | 0.50               |
| KARCHAM WANGTOO                                   | 7.56                                | 0.47               |
| CHANDIGARH  | 6.03                                | 0.38               |



|   |                |               |
|---|----------------|---------------|
| URI-2   | 5.01           | 0.31          |
| MEGHALAYA   | 4.88           | 0.31          |
| ASSAM   | 4.63           | 0.29          |
| ADHUNIK POWER LTD                                 | 4.54           | 0.28          |
| SIKKIM  | 4.54           | 0.28          |
| TEESTA HEP  | 4.42           | 0.28          |
| PONDICHERRY                                       | 4.04           | 0.25          |
| DAMAN AND DIU                                     | 3.51           | 0.22          |
| MEENAKSHI   | 3.48           | 0.22          |
| KERALA  | 3.38           | 0.21          |
| SHREE CEMENT                                      | 2.65           | 0.17          |
| GMR KAMALANGA                                     | 2.32           | 0.15          |
| STERLITE  | 2.30           | 0.14          |
| SIMHAPURI   | 2.06           | 0.13          |
| MANIPUR   | 1.99           | 0.12          |
| COASTGEN  | 1.89           | 0.12          |
| RANGANADI HEP                                     | 1.70           | 0.11          |
| RANGIT HEP  | 1.70           | 0.11          |
| TRIPURA   | 1.22           | 0.08          |
| ARUNACHAL PRADESH                                 | 1.07           | 0.07          |
| LOKTAK  | 0.65           | 0.04          |
| DOYANG HEP  | 0.57           | 0.04          |
| AD HYDRO  | 0.52           | 0.03          |
| CHUZACHEN HEP                                     | 0.36           | 0.02          |
| DAGACHU   | 0.32           | 0.02          |
| LANKO KONDAPALLI                                  | 0.20           | 0.01          |
| MIZORAM   | 0.17           | 0.01          |
| NAGALAND  | 0.17           | 0.01          |
| LANCO BUDHIL                                      | 0.14           | 0.01          |
| ADANI HVDC  | 0.05           | 0.00          |
| MALANA  | 0.02           | 0.00          |
| <b>Total</b>                                      | <b>1595.03</b> | <b>100.00</b> |
| <b>Volume Exported by top 5 Regional Entities</b> | <b>668.39</b>  | <b>41.90</b>  |

**Table-14: VOLUME OF ELECTRICITY OVER DRAWAL (IMPORTED) THROUGH DSM,  
DECEMBER 2015**

| <b>Name of the State/UT/Other Regional Entity</b> | <b>Volume of Over drawal (MUs)</b> | <b>% of Volume</b> |
|---|------------------------------------|--------------------|
| HARYANA   | 159.15                             | 10.11              |
| JORETHANG   | 131.17                             | 8.33               |
| PUNJAB  | 112.38                             | 7.14               |
| NTPC STATIONS-ER                                  | 80.53                              | 5.11               |
| KARNATAKA   | 79.13                              | 5.02               |
| UTTAR PRADESH                                     | 62.96                              | 4.00               |
| RAJASTHAN   | 62.49                              | 3.97               |
| KERALA  | 57.40                              | 3.64               |
| NTPC STATIONS-NR                                  | 57.23                              | 3.63               |
| UTTARAKHAND                                       | 53.66                              | 3.41               |
| CHHATTISGARH                                      | 49.26                              | 3.13               |
| GUJARAT   | 44.55                              | 2.83               |
| ODISHA  | 44.37                              | 2.82               |
| BIHAR   | 37.81                              | 2.40               |
| NTPC STATIONS-SR                                  | 36.45                              | 2.31               |
| ASSAM   | 33.53                              | 2.13               |
| WEST BENGAL                                       | 32.78                              | 2.08               |
| MP  | 32.26                              | 2.05               |
| ANDHRA PRADESH                                    | 31.34                              | 1.99               |
| NTPC STATIONS-WR                                  | 30.55                              | 1.94               |
| TELANGANA   | 30.23                              | 1.92               |
| HIMACHAL PRADESH                                  | 30.04                              | 1.91               |
| DELHI   | 27.08                              | 1.72               |
| JHARKHAND   | 25.65                              | 1.63               |
| TAMILNADU   | 25.19                              | 1.60               |
| MAHARASHTRA                                       | 21.34                              | 1.35               |
| ARUNACHAL PRADESH                                 | 15.08                              | 0.96               |
| TRIPURA   | 15.01                              | 0.95               |
| GOA   | 13.98                              | 0.89               |
| NAGALAND  | 13.95                              | 0.89               |
| CHANDIGARH  | 12.76                              | 0.81               |
| MIZORAM   | 10.93                              | 0.69               |
| STERLITE  | 10.74                              | 0.68               |
| DVC   | 10.11                              | 0.64               |
| JITPL   | 9.17                               | 0.58               |
| THERMAL POWERTECH                                 | 8.67                               | 0.55               |
| DAMAN AND DIU                                     | 6.30                               | 0.40               |
| PONDICHERRY                                       | 5.56                               | 0.35               |
| NHPC STATIONS                                     | 5.29                               | 0.34               |
| NEEPCO STATIONS                                   | 4.60                               | 0.29               |
| MANIPUR   | 4.42                               | 0.28               |
| SHREE CEMENT                                      | 4.41                               | 0.28               |
| COASTGEN  | 4.14                               | 0.26               |
| NJPC  | 4.08                               | 0.26               |

|   |                |               |
|---|----------------|---------------|
| MEGHALAYA   | 3.89           | 0.25          |
| GMR KAMALANGA                                     | 3.86           | 0.25          |
| MAITHON POWER LTD                                 | 3.63           | 0.23          |
| RANGANADI HEP                                     | 2.17           | 0.14          |
| SIMHAPURI   | 2.10           | 0.13          |
| LANKO KONDAPALLI                                  | 1.88           | 0.12          |
| SIKKIM  | 1.78           | 0.11          |
| KARCHAM WANGTOO                                   | 1.61           | 0.10          |
| URI-2   | 1.13           | 0.07          |
| ADHUNIK POWER LTD                                 | 1.10           | 0.07          |
| DADRA & NAGAR HAVELI                              | 0.92           | 0.06          |
| MEENAKSHI   | 0.90           | 0.06          |
| DOYANG HEP  | 0.43           | 0.03          |
| RANGIT HEP  | 0.40           | 0.03          |
| LOKTAK  | 0.37           | 0.02          |
| AD HYDRO  | 0.33           | 0.02          |
| CHUZACHEN HEP                                     | 0.21           | 0.01          |
| MALANA  | 0.15           | 0.01          |
| DAGACHU   | 0.14           | 0.01          |
| ADANI HVDC  | 0.12           | 0.01          |
| TEESTA HEP  | 0.05           | 0.00          |
| LANCO BUDHIL                                      | 0.04           | 0.00          |
| <b>TOTAL</b>                                      | <b>1574.85</b> | <b>100.00</b> |
| <b>Volume Imported by top 5 Regional Entities</b> | <b>562.35</b>  | <b>35.71</b>  |

**Table-15: TOTAL VOLUME OF NET SHORT-TERM TRANSACTIONS OF ELECTRICITY (REGIONAL ENTITY-WISE), DECEMBER 2015**

| Sr.No. | Name of the State/UT/Other Regional Entity | Total volume of net short-term transactions of electricity* |
|--------|--|---|
| 1      | TELANGANA                                  | 633.86  |
| 2      | RAJASTHAN                                  | 633.66  |
| 3      | BIHAR                                      | 586.78  |
| 4      | MP   | 451.87  |
| 5      | J & K                                      | 430.98  |
| 6      | UTTARAKHAND                                | 404.84  |
| 7      | ANDHRA PRADESH                             | 330.44  |
| 8      | GUJARAT                                    | 301.92  |
| 9      | KERALA                                     | 253.24  |
| 10     | HIMACHAL PRADESH                           | 243.66  |
| 11     | CHHATTISGARH                               | 229.13  |
| 12     | ESSAR STEEL                                | 207.39  |
| 13     | KARNATAKA                                  | 196.46  |
| 14     | JHARKHAND                                  | 108.08  |
| 15     | DADRA & NAGAR HAVELI                       | 105.48  |
| 16     | ASSAM                                      | 95.53   |
| 17     | ODISHA                                     | 94.03   |
| 18     | MEGHALAYA                                  | 71.29   |
| 19     | NTPC STATIONS-ER                           | 55.02   |
| 20     | HARYANA                                    | 51.10   |
| 21     | DAMAN AND DIU                              | 39.83   |
| 22     | NAGALAND                                   | 23.40   |
| 23     | NTPC STATIONS-SR                           | 22.32   |
| 24     | GOA  | 19.36   |
| 25     | ARUNACHAL PRADESH                          | 19.31   |
| 26     | MANIPUR                                    | 11.26   |
| 27     | MIZORAM                                    | 10.09   |
| 28     | COASTGEN                                   | 2.25  |
| 29     | JORETHANG                                  | 2.25  |
| 30     | PONDICHERRY                                | 1.52  |
| 31     | RANGANADI HEP                              | 0.47  |
| 32     | MALANA                                     | 0.12  |
| 33     | ADANI HVDC                                 | 0.07  |
| 34     | LANKO_AMK                                  | 0.00  |
| 35     | RGPPL(DABHOL)                              | 0.00  |
| 36     | CGPL                                       | 0.00  |
| 37     | VANDANA VIDYUT                             | 0.00  |
| 38     | KSK MAHANADI                               | 0.00  |
| 39     | ESSAR POWER                                | 0.00  |
| 40     | DGEN MEGA POWER                            | 0.00  |
| 41     | MB POWER                                   | 0.00  |
| 42     | MARUTI COAL                                | 0.00  |
| 43     | NTPC STATIONS-NER                          | 0.00  |
| 44     | ONGC PALATANA                              | 0.00  |
| 45     | DOYANG HEP                                 | -0.14   |
| 46     | LOKTAK                                     | -0.28   |

|  |                   |         |
|--|-------------------|---------|
| 47   | CHANDIGARH        | -0.39   |
| 48   | LANCO BUDHIL      | -0.82   |
| 49   | RANGIT HEP        | -1.29   |
| 50   | EMCO              | -1.31   |
| 51   | NEEPCO STATIONS   | -3.30   |
| 52   | URI-2             | -3.88   |
| 53   | TEESTA HEP        | -4.37   |
| 54   | NTPC STATIONS-NR  | -4.46   |
| 55   | BALCO             | -6.78   |
| 56   | WEST BENGAL       | -12.72  |
| 57   | CHUZACHEN HEP     | -12.91  |
| 58   | SPECTRUM          | -13.78  |
| 59   | SIKKIM            | -14.82  |
| 60   | AD HYDRO          | -15.69  |
| 61   | DAGACHU           | -15.95  |
| 62   | DHARIWAL POWER    | -22.10  |
| 63   | NSPCL             | -23.21  |
| 64   | NJPC              | -29.64  |
| 65   | MAITHON POWER LTD | -38.82  |
| 66   | TAMILNADU         | -40.89  |
| 67   | ACBIL             | -51.49  |
| 68   | JAYPEE NIGRIE     | -63.02  |
| 69   | KARCHAM WANGTOO   | -75.12  |
| 70   | DVC               | -76.25  |
| 71   | NHPC STATIONS     | -77.39  |
| 72   | JINDAL STAGE-II   | -78.84  |
| 73   | UTTAR PRADESH     | -87.63  |
| 74   | TRIPURA           | -88.85  |
| 75   | KORBA WEST POWER  | -94.53  |
| 76   | MAHARASHTRA       | -96.67  |
| 77   | MEENAKSHI         | -112.18 |
| 78   | DCPP              | -114.39 |
| 79   | LANKO KONDAPALLI  | -129.49 |
| 80   | NTPC STATIONS-WR  | -146.96 |
| 81   | STERLITE          | -153.52 |
| 82   | SHREE CEMENT      | -159.04 |
| 83   | DB POWER          | -162.79 |
| 84   | GMR CHHATTISGARH  | -187.50 |
| 85   | ADHUNIK POWER LTD | -237.83 |
| 86   | PUNJAB            | -240.04 |
| 87   | SIMHAPURI         | -245.51 |
| 88   | DELHI             | -280.77 |
| 89   | JINDAL POWER      | -373.64 |
| 90   | GMR KAMALANGA     | -384.06 |
| 91   | JITPL             | -513.95 |
| 92   | THERMAL POWERTECH | -590.19 |
| <i>* Total volume of net short-term transactions of electricity includes net of transactions of electricity through bilateral, power exchange and UI</i> |                   |         |
| <i>(-) indicates sale and (+) indicates purchase</i>   |                   |         |

| <b>Table-16: DETAILS OF CONGESTION IN POWER EXCHANGES, DECEMBER 2015</b>   |  |            |             |
|--|--|------------|-------------|
|  | <b>Details of Congestion</b>   | <b>IEX</b> | <b>PXIL</b> |
| A  | Unconstrained Cleared Volume* (MUs)  | 3041.76    | 4.27        |
| B  | Actual Cleared Volume and hence scheduled (MUs)  | 2987.35    | 4.51        |
| C  | Volume of electricity that could not be cleared and hence not scheduled because of congestion (MUs) (A-B)                            | 54.41      | -0.24#      |
| D  | Volume of electricity that could not be cleared as % to Unconstrained Cleared Volume   | 1.79%      | -5.51%      |
| E  | Percentage of the time congestion occurred during the month (Number of hours congestion occurred/Total number of hours in the month) | 52.02%     | 31.72%      |
| F  | Congestion occurrence (%) time block wise  |            |             |
|  | 0.00 - 6.00 hours  | 11.05%     | 0.74%       |
|  | 6.00 - 12.00 hours   | 37.53%     | 33.16%      |
|  | 12.00 - 18.00 hours  | 28.04%     | 27.65%      |
|  | 18.00 - 24.00 hours  | 23.39%     | 38.45%      |
| <p>* This power would have been scheduled had there been no congestion.<br/> # In some instances, after market splitting the Actual Cleared Volume can be greater than the Unconstrained Cleared Volume.</p> |  |            |             |
| Source: IEX & PXIL & NLDC  |  |            |             |

| <b>Table-17: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY IN INDIA (MUs) (DAY-WISE), DECEMBER 2015</b> |                           |                |  |             |  |  |
|--|---------------------------|----------------|--|-------------|--|--|
| 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-Dec-15   | 87.34                     | 70.04          | 91.27  | 0.14        | 51.64  | 2855.47  |
| 2-Dec-15   | 83.35                     | 66.98          | 98.28  | 0.12        | 53.22  | 2793.25  |
| 3-Dec-15   | 84.49                     | 67.45          | 97.34  | 0.14        | 53.32  | 2805.08  |
| 4-Dec-15   | 94.73                     | 69.19          | 88.22  | 0.14        | 52.45  | 2800.89  |
| 5-Dec-15   | 96.17                     | 65.71          | 93.46  | 0.13        | 52.30  | 2804.87  |
| 6-Dec-15   | 91.75                     | 54.99          | 86.92  | 0.30        | 50.66  | 2735.48  |
| 7-Dec-15   | 94.52                     | 63.33          | 92.80  | 0.21        | 52.95  | 2820.68  |
| 8-Dec-15   | 99.35                     | 65.11          | 96.29  | 0.21        | 54.27  | 2865.27  |
| 9-Dec-15   | 97.80                     | 65.64          | 100.42   | 0.23        | 53.75  | 2859.55  |
| 10-Dec-15  | 97.07                     | 67.36          | 103.51   | 0.09        | 51.12  | 2886.14  |
| 11-Dec-15  | 99.26                     | 65.47          | 102.18   | 0.26        | 53.24  | 2875.07  |
| 12-Dec-15  | 97.41                     | 70.31          | 95.71  | 0.12        | 55.58  | 2903.96  |
| 13-Dec-15  | 94.71                     | 56.56          | 92.48  | 0.15        | 53.33  | 2825.08  |
| 14-Dec-15  | 98.68                     | 69.20          | 99.17  | 0.15        | 54.66  | 2869.84  |
| 15-Dec-15  | 99.34                     | 69.50          | 99.48  | 0.13        | 58.59  | 2910.86  |
| 16-Dec-15  | 103.66                    | 79.88          | 94.63  | 0.15        | 53.93  | 2951.45  |
| 17-Dec-15  | 95.86                     | 85.86          | 90.92  | 0.13        | 52.59  | 2939.09  |
| 18-Dec-15  | 96.12                     | 84.07          | 87.02  | 0.15        | 53.50  | 2930.34  |
| 19-Dec-15  | 94.06                     | 81.89          | 92.41  | 0.13        | 53.16  | 2953.74  |
| 20-Dec-15  | 90.99                     | 75.64          | 87.35  | 0.12        | 50.88  | 2876.50  |
| 21-Dec-15  | 97.07                     | 82.73          | 90.45  | 0.16        | 50.19  | 2957.03  |
| 22-Dec-15  | 101.50                    | 80.76          | 96.51  | 0.13        | 52.59  | 3006.44  |
| 23-Dec-15  | 102.50                    | 81.57          | 97.81  | 0.09        | 54.80  | 2989.16  |
| 24-Dec-15  | 102.55                    | 83.51          | 107.07   | 0.11        | 59.44  | 2938.82  |
| 25-Dec-15  | 99.11                     | 85.53          | 111.22   | 0.11        | 56.17  | 2900.61  |
| 26-Dec-15  | 101.63                    | 84.86          | 100.60   | 0.13        | 59.42  | 2870.96  |
| 27-Dec-15  | 96.33                     | 76.27          | 95.87  | 0.09        | 54.74  | 2789.70  |
| 28-Dec-15  | 98.46                     | 89.33          | 98.57  | 0.12        | 54.29  | 2847.85  |
| 29-Dec-15  | 102.44                    | 79.97          | 101.59   | 0.10        | 57.25  | 2895.09  |
| 30-Dec-15  | 101.14                    | 75.20          | 96.73  | 0.10        | 56.52  | 2932.03  |
| 31-Dec-15  | 105.01                    | 76.40          | 100.51   | 0.14        | 45.50  | 2918.45  |
| <b>Total</b>   | <b>3004.42</b>            | <b>2290.28</b> | <b>2986.79</b>   | <b>4.51</b> | <b>1666.05</b>                                     | <b>89308.75</b>  |

Source: NLDC

\* Gross Electricity Generation excluding electricity generation from renewables and captive power plants.

\*\* The volume of bilateral through PXs represents the volume through term-ahead contracts.

# Area Clearing Volume represents the scheduled volume of all the bid areas.

| Table-18: PRICE OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (₹/kWh),DECEMBER 2015 (DAY-WISE) |                         |              |                         |                          |              |                         |   |               |                 |
|--|-------------------------|--------------|-------------------------|--------------------------|--------------|-------------------------|---|---------------|-----------------|
| Market Segment   | Day ahead market of IEX |              |                         | Day ahead market of PXIL |              |                         | Under Draw/Over Drawl from the Grid (DSM) |               |                 |
| Date   | Minimum ACP             | Maximum ACP  | Weighted Average Price* | Minimum ACP              | Maximum ACP  | Weighted Average Price* | All India Grid                            |               |                 |
|  |                         |              |                         |                          |              |                         | Mini-mum Price                            | Maximum Price | Average Price** |
| 1-Dec-15   | 1.00                    | 5.16         | 2.47                    | 2.10                     | 3.49         | 2.62                    | 0.00                                      | 6.36          | 2.05            |
| 2-Dec-15   | 1.74                    | 4.80         | 2.74                    | 2.50                     | 2.50         | 2.50                    | 0.00                                      | 6.16          | 2.06            |
| 3-Dec-15   | 0.80                    | 8.01         | 2.63                    | 2.75                     | 2.75         | 2.75                    | 0.00                                      | 5.95          | 2.14            |
| 4-Dec-15   | 1.00                    | 4.50         | 2.42                    | 2.65                     | 2.65         | 2.65                    | 0.00                                      | 4.91          | 1.71            |
| 5-Dec-15   | 0.90                    | 4.51         | 2.48                    | 2.50                     | 2.50         | 2.50                    | 0.00                                      | 3.45          | 1.78            |
| 6-Dec-15   | 0.81                    | 4.30         | 2.16                    | 1.98                     | 3.01         | 2.81                    | 0.00                                      | 3.45          | 1.45            |
| 7-Dec-15   | 0.60                    | 4.50         | 2.12                    | 2.00                     | 3.51         | 2.82                    | 0.00                                      | 5.95          | 2.02            |
| 8-Dec-15   | 0.60                    | 5.00         | 2.32                    | 2.00                     | 3.01         | 2.76                    | 0.71                                      | 4.91          | 2.26            |
| 9-Dec-15   | 0.79                    | 4.80         | 2.35                    | 2.00                     | 3.01         | 2.74                    | 0.36                                      | 5.95          | 2.30            |
| 10-Dec-15  | 1.00                    | 4.50         | 2.37                    | 2.00                     | 3.01         | 2.40                    | 0.00                                      | 4.91          | 1.92            |
| 11-Dec-15  | 0.60                    | 4.70         | 2.12                    | 1.95                     | 3.51         | 2.59                    | 0.00                                      | 5.95          | 2.38            |
| 12-Dec-15  | 0.80                    | 5.30         | 2.48                    | 1.75                     | 2.81         | 2.30                    | 0.00                                      | 6.36          | 2.57            |
| 13-Dec-15  | 1.15                    | 4.00         | 2.26                    | 1.86                     | 3.51         | 2.44                    | 0.00                                      | 5.32          | 2.16            |
| 14-Dec-15  | 1.10                    | 5.20         | 2.66                    | 1.86                     | 3.51         | 2.42                    | 0.00                                      | 3.45          | 1.88            |
| 15-Dec-15  | 1.75                    | 5.21         | 2.74                    | 1.89                     | 3.33         | 2.63                    | 0.71                                      | 3.45          | 2.28            |
| 16-Dec-15  | 1.10                    | 5.51         | 2.47                    | 2.04                     | 3.72         | 2.70                    | 0.36                                      | 3.45          | 2.13            |
| 17-Dec-15  | 1.74                    | 7.50         | 2.62                    | 2.60                     | 2.60         | 2.60                    | 0.36                                      | 3.45          | 2.14            |
| 18-Dec-15  | 1.92                    | 7.50         | 3.07                    | 1.87                     | 3.17         | 2.67                    | 0.00                                      | 3.45          | 1.78            |
| 19-Dec-15  | 1.30                    | 5.50         | 2.88                    | 3.20                     | 3.20         | 3.20                    | 0.00                                      | 3.03          | 1.73            |
| 20-Dec-15  | 1.00                    | 5.01         | 2.60                    | 2.80                     | 2.80         | 2.80                    | 0.00                                      | 3.24          | 1.94            |
| 21-Dec-15  | 1.30                    | 8.00         | 3.12                    | 1.93                     | 6.01         | 3.15                    | 0.00                                      | 5.32          | 2.37            |
| 22-Dec-15  | 1.00                    | 5.20         | 2.89                    | 2.00                     | 3.55         | 3.15                    | 0.00                                      | 5.95          | 2.73            |
| 23-Dec-15  | 1.04                    | 7.00         | 2.80                    | 2.20                     | 3.50         | 2.85                    | 0.00                                      | 6.16          | 2.55            |
| 24-Dec-15  | 1.65                    | 4.53         | 2.65                    | 2.05                     | 3.35         | 2.70                    | 0.00                                      | 5.11          | 2.02            |
| 25-Dec-15  | 1.48                    | 4.90         | 2.54                    | 2.10                     | 3.21         | 2.63                    | 0.00                                      | 3.03          | 1.33            |
| 26-Dec-15  | 1.05                    | 7.00         | 2.50                    | 2.00                     | 3.08         | 2.50                    | 0.00                                      | 3.24          | 1.25            |
| 27-Dec-15  | 0.85                    | 5.50         | 2.22                    | 2.02                     | 2.90         | 2.40                    | 0.00                                      | 3.45          | 1.70            |
| 28-Dec-15  | 0.80                    | 5.20         | 2.40                    | 2.12                     | 3.00         | 2.50                    | 0.00                                      | 4.91          | 1.59            |
| 29-Dec-15  | 0.80                    | 3.32         | 2.34                    | 2.22                     | 3.10         | 2.60                    | 0.00                                      | 6.36          | 2.69            |
| 30-Dec-15  | 0.81                    | 4.45         | 2.41                    | 2.07                     | 2.95         | 2.45                    | 0.00                                      | 5.95          | 2.79            |
| 31-Dec-15  | 0.90                    | 7.00         | 2.49                    | 2.07                     | 2.95         | 2.45                    | 0.00                                      | 3.45          | 1.87            |
|  | <b>0.59#</b>            | <b>8.01#</b> | <b>2.52</b>             | <b>1.75#</b>             | <b>6.01#</b> | <b>2.67</b>             | 0.00#                                     | <b>6.36#</b>  | <b>2.05</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), DECEMBER 2015**

| Name of the State/UT/Other Regional Entity | Through Bilateral |          |         | Through Power Exchange |          |         | Through DSM with Regional Grid |                     |         | Total Net*** |
|--|-------------------|----------|---------|------------------------|----------|---------|--------------------------------|---------------------|---------|--------------|
|  | Sale              | Purchase | Net**   | Sale                   | Purchase | Net**   | Import (Over Draw)             | Export (Under Draw) | Net**   |              |
| PUNJAB                                     | 527.13            | 5.45     | -521.67 | 0.00                   | 222.69   | 222.69  | 112.38                         | 53.43               | 58.95   | -240.04      |
| HARYANA                                    | 604.05            | 325.41   | -278.64 | 8.77                   | 206.16   | 197.40  | 159.15                         | 26.80               | 132.35  | 51.10        |
| RAJASTHAN                                  | 128.06            | 263.61   | 135.55  | 21.99                  | 504.73   | 482.74  | 62.49                          | 47.13               | 15.37   | 633.66       |
| DELHI                                      | 522.05            | 15.67    | -506.38 | 19.53                  | 236.71   | 217.18  | 27.08                          | 18.66               | 8.43    | -280.77      |
| UTTAR PRADESH                              | 199.02            | 146.55   | -52.47  | 0.00                   | 0.00     | 0.00    | 62.96                          | 98.12               | -35.16  | -87.63       |
| UTTARAKHAND                                | 0.00              | 154.14   | 154.14  | 0.00                   | 205.53   | 205.53  | 53.66                          | 8.49                | 45.17   | 404.84       |
| HIMACHAL PRADESH                           | 131.35            | 397.10   | 265.74  | 93.99                  | 57.43    | -36.57  | 30.04                          | 15.55               | 14.49   | 243.66       |
| J & K                                      | 14.06             | 451.56   | 437.50  | 20.41                  | 13.89    | -6.52   | 0.00                           | 0.00                | 0.00    | 430.98       |
| CHANDIGARH                                 | 7.44              | 0.00     | -7.44   | 3.13                   | 3.45     | 0.32    | 12.76                          | 6.03                | 6.73    | -0.39        |
| MP   | 7.11              | 612.70   | 605.60  | 119.76                 | 20.63    | -99.13  | 32.26                          | 86.87               | -54.60  | 451.87       |
| MAHARASHTRA                                | 25.64             | 252.61   | 226.97  | 188.68                 | 17.14    | -171.55 | 21.34                          | 173.44              | -152.10 | -96.67       |
| GUJARAT                                    | 175.30            | 385.71   | 210.41  | 106.71                 | 241.83   | 135.11  | 44.55                          | 88.15               | -43.60  | 301.92       |
| CHHATTISGARH                               | 134.90            | 385.34   | 250.44  | 55.99                  | 11.71    | -44.29  | 49.26                          | 26.28               | 22.98   | 229.13       |
| DAMAN AND DIU                              | 0.00              | 0.00     | 0.00    | 0.00                   | 37.04    | 37.04   | 6.30                           | 3.51                | 2.79    | 39.83        |
| DADRA & NAGAR HAVELI                       | 0.00              | 16.51    | 16.51   | 0.00                   | 97.69    | 97.69   | 0.92                           | 9.63                | -8.72   | 105.48       |
| ANDHRA PRADESH                             | 88.22             | 343.28   | 255.06  | 2.66                   | 80.44    | 77.77   | 31.34                          | 33.73               | -2.39   | 330.44       |
| KARNATAKA                                  | 0.00              | 0.00     | 0.00    | 0.00                   | 153.26   | 153.26  | 79.13                          | 35.93               | 43.19   | 196.46       |
| KERALA                                     | 0.00              | 155.33   | 155.33  | 7.15                   | 51.04    | 43.89   | 57.40                          | 3.38                | 54.02   | 253.24       |
| TAMILNADU                                  | 0.00              | 2.91     | 2.91    | 0.00                   | 11.66    | 11.66   | 25.19                          | 80.65               | -55.46  | -40.89       |
| PONDICHERRY                                | 0.00              | 0.00     | 0.00    | 0.00                   | 0.00     | 0.00    | 5.56                           | 4.04                | 1.52    | 1.52         |
| GOA  | 0.00              | 3.72     | 3.72    | 8.02                   | 22.82    | 14.80   | 13.98                          | 13.14               | 0.84    | 19.36        |
| TELANGANA                                  | 10.09             | 580.03   | 569.94  | 41.96                  | 117.46   | 75.50   | 30.23                          | 41.82               | -11.59  | 633.86       |
| WEST BENGAL                                | 185.90            | 174.24   | -11.65  | 60.41                  | 51.34    | -9.06   | 32.78                          | 24.78               | 8.00    | -12.72       |
| ODISHA                                     | 21.97             | 123.05   | 101.08  | 76.52                  | 52.04    | -24.48  | 44.37                          | 26.94               | 17.43   | 94.03        |
| BIHAR                                      | 0.00              | 263.95   | 263.95  | 0.00                   | 317.92   | 317.92  | 37.81                          | 32.89               | 4.91    | 586.78       |
| JHARKHAND                                  | 0.00              | 91.22    | 91.22   | 0.00                   | 0.00     | 0.00    | 25.65                          | 8.78                | 16.86   | 108.08       |
| SIKKIM                                     | 0.00              | 0.00     | 0.00    | 12.06                  | 0.00     | -12.06  | 1.78                           | 4.54                | -2.76   | -14.82       |
| DVC  | 18.84             | 0.00     | -18.84  | 28.78                  | 0.00     | -28.78  | 10.11                          | 38.74               | -28.63  | -76.25       |
| ARUNACHAL PRADESH                          | 0.00              | 0.00     | 0.00    | 0.00                   | 5.30     | 5.30    | 15.08                          | 1.07                | 14.00   | 19.31        |
| ASSAM                                      | 0.00              | 21.65    | 21.65   | 4.20                   | 49.18    | 44.98   | 33.53                          | 4.63                | 28.90   | 95.53        |
| MANIPUR                                    | 0.00              | 23.86    | 23.86   | 15.36                  | 0.32     | -15.03  | 4.42                           | 1.99                | 2.43    | 11.26        |
| MEGHALAYA                                  | 5.83              | 55.96    | 50.13   | 4.67                   | 26.82    | 22.15   | 3.89                           | 4.88                | -1.00   | 71.29        |

|                   |        |       |         |        |        |         |       |        |         |         |
|-------------------|--------|-------|---------|--------|--------|---------|-------|--------|---------|---------|
| MIZORAM           | 0.00   | 0.00  | 0.00    | 1.85   | 1.19   | -0.66   | 10.93 | 0.17   | 10.76   | 10.09   |
| NAGALAND          | 0.00   | 0.00  | 0.00    | 0.00   | 9.62   | 9.62    | 13.95 | 0.17   | 13.78   | 23.40   |
| TRIPURA           | 21.81  | 0.00  | -21.81  | 80.83  | 0.00   | -80.83  | 15.01 | 1.22   | 13.79   | -88.85  |
| NTPC STATIONS-NR  | 0.00   | 0.00  | 0.00    | 0.00   | 0.00   | 0.00    | 57.23 | 61.69  | -4.46   | -4.46   |
| NHPC STATIONS     | 0.00   | 0.00  | 0.00    | 12.69  | 0.00   | -12.69  | 5.29  | 69.99  | -64.70  | -77.39  |
| NJPC              | 0.00   | 0.00  | 0.00    | 25.15  | 0.00   | -25.15  | 4.08  | 8.57   | -4.49   | -29.64  |
| AD HYDRO          | 0.00   | 0.00  | 0.00    | 15.50  | 0.00   | -15.50  | 0.33  | 0.52   | -0.19   | -15.69  |
| KARCHAM WANGTOO   | 0.00   | 0.00  | 0.00    | 69.16  | 0.00   | -69.16  | 1.61  | 7.56   | -5.96   | -75.12  |
| SHREE CEMENT      | 122.93 | 0.00  | -122.93 | 37.86  | 0.00   | -37.86  | 4.41  | 2.65   | 1.76    | -159.04 |
| LANCO BUDHIL      | 0.00   | 0.00  | 0.00    | 0.72   | 0.00   | -0.72   | 0.04  | 0.14   | -0.10   | -0.82   |
| ADANI HVDC        | 0.00   | 0.00  | 0.00    | 0.00   | 0.00   | 0.00    | 0.12  | 0.05   | 0.07    | 0.07    |
| MALANA            | 0.00   | 0.00  | 0.00    | 0.01   | 0.00   | -0.01   | 0.15  | 0.02   | 0.13    | 0.12    |
| URI-2             | 0.00   | 0.00  | 0.00    | 0.00   | 0.00   | 0.00    | 1.13  | 5.01   | -3.88   | -3.88   |
| NTPC STATIONS-WR  | 0.00   | 0.00  | 0.00    | 0.00   | 0.00   | 0.00    | 30.55 | 177.51 | -146.96 | -146.96 |
| JINDAL POWER      | 208.09 | 0.00  | -208.09 | 165.55 | 0.00   | -165.55 | 0.00  | 0.00   | 0.00    | -373.64 |
| NSPCL             | 23.21  | 0.00  | -23.21  | 0.00   | 0.00   | 0.00    | 0.00  | 0.00   | 0.00    | -23.21  |
| ACBIL             | 26.19  | 0.00  | -26.19  | 25.30  | 0.00   | -25.30  | 0.00  | 0.00   | 0.00    | -51.49  |
| BALCO             | 0.00   | 0.00  | 0.00    | 6.78   | 0.00   | -6.78   | 0.00  | 0.00   | 0.00    | -6.78   |
| DCPP              | 0.00   | 0.00  | 0.00    | 114.39 | 0.00   | -114.39 | 0.00  | 0.00   | 0.00    | -114.39 |
| EMCO              | 0.56   | 0.00  | -0.56   | 0.74   | 0.00   | -0.74   | 0.00  | 0.00   | 0.00    | -1.31   |
| ESSAR STEEL       | 0.00   | 43.14 | 43.14   | 0.00   | 164.26 | 164.26  | 0.00  | 0.00   | 0.00    | 207.39  |
| JINDAL STAGE-II   | 29.13  | 0.00  | -29.13  | 49.71  | 0.00   | -49.71  | 0.00  | 0.00   | 0.00    | -78.84  |
| DB POWER          | 37.90  | 0.00  | -37.90  | 124.89 | 0.00   | -124.89 | 0.00  | 0.00   | 0.00    | -162.79 |
| DHARIWAL POWER    | 0.00   | 0.00  | 0.00    | 22.10  | 0.00   | -22.10  | 0.00  | 0.00   | 0.00    | -22.10  |
| JAYPEE NIGRIE     | 0.00   | 0.00  | 0.00    | 63.02  | 0.00   | -63.02  | 0.00  | 0.00   | 0.00    | -63.02  |
| GMR CHHATTISGARH  | 3.23   | 0.00  | -3.23   | 184.27 | 0.00   | -184.27 | 0.00  | 0.00   | 0.00    | -187.50 |
| KORBA WEST POWER  | 11.64  | 0.00  | -11.64  | 82.90  | 0.00   | -82.90  | 0.00  | 0.00   | 0.00    | -94.53  |
| SPECTRUM          | 0.00   | 0.00  | 0.00    | 13.78  | 0.00   | -13.78  | 0.00  | 0.00   | 0.00    | -13.78  |
| NTPC STATIONS-SR  | 0.00   | 0.00  | 0.00    | 0.00   | 0.00   | 0.00    | 36.45 | 14.13  | 22.32   | 22.32   |
| LANKO KONDAPALLI  | 131.17 | 0.00  | -131.17 | 0.00   | 0.00   | 0.00    | 1.88  | 0.20   | 1.68    | -129.49 |
| SIMHAPURI         | 174.92 | 0.00  | -174.92 | 70.62  | 0.00   | -70.62  | 2.10  | 2.06   | 0.04    | -245.51 |
| MEENAKSHI         | 91.46  | 0.00  | -91.46  | 18.14  | 0.00   | -18.14  | 0.90  | 3.48   | -2.58   | -112.18 |
| COASTGEN          | 0.00   | 0.00  | 0.00    | 0.00   | 0.00   | 0.00    | 4.14  | 1.89   | 2.25    | 2.25    |
| THERMAL POWERTECH | 405.37 | 0.00  | -405.37 | 182.84 | 0.00   | -182.84 | 8.67  | 10.64  | -1.97   | -590.19 |
| NTPC STATIONS-ER  | 0.00   | 0.00  | 0.00    | 0.00   | 0.00   | 0.00    | 80.53 | 25.51  | 55.02   | 55.02   |
| STERLITE          | 86.40  | 0.00  | -86.40  | 75.55  | 0.00   | -75.55  | 10.74 | 2.30   | 8.44    | -153.52 |

|                   |                |                |               |                |                |              |                |                |               |               |
|-------------------|----------------|----------------|---------------|----------------|----------------|--------------|----------------|----------------|---------------|---------------|
| MAITHON POWER LTD | 0.00           | 0.00           | 0.00          | 33.70          | 0.00           | -33.70       | 3.63           | 8.75           | -5.12         | -38.82        |
| ADHUNIK POWER LTD | 90.75          | 0.00           | -90.75        | 143.64         | 0.00           | -143.64      | 1.10           | 4.54           | -3.44         | -237.83       |
| CHUZACHEN HEP     | 0.00           | 0.00           | 0.00          | 12.77          | 0.00           | -12.77       | 0.21           | 0.36           | -0.14         | -12.91        |
| RANGIT HEP        | 0.00           | 0.00           | 0.00          | 0.00           | 0.00           | 0.00         | 0.40           | 1.70           | -1.29         | -1.29         |
| GMR KAMALANGA     | 358.25         | 0.00           | -358.25       | 27.35          | 0.00           | -27.35       | 3.86           | 2.32           | 1.54          | -384.06       |
| JITPL             | 99.82          | 0.00           | -99.82        | 412.14         | 0.00           | -412.14      | 9.17           | 11.16          | -1.99         | -513.95       |
| TEESTA HEP        | 0.00           | 0.00           | 0.00          | 0.00           | 0.00           | 0.00         | 0.05           | 4.42           | -4.37         | -4.37         |
| DAGACHU           | 15.77          | 0.00           | -15.77        | 0.00           | 0.00           | 0.00         | 0.14           | 0.32           | -0.18         | -15.95        |
| JORETHANG         | 0.00           | 0.00           | 0.00          | 0.00           | 0.00           | 0.00         | 4.14           | 1.89           | 2.25          | 2.25          |
| NEEPCO STATIONS   | 0.00           | 0.00           | 0.00          | 0.00           | 0.00           | 0.00         | 4.60           | 7.90           | -3.30         | -3.30         |
| RANGANADI HEP     | 0.00           | 0.00           | 0.00          | 0.00           | 0.00           | 0.00         | 2.17           | 1.70           | 0.47          | 0.47          |
| DOYANG HEP        | 0.00           | 0.00           | 0.00          | 0.00           | 0.00           | 0.00         | 0.43           | 0.57           | -0.14         | -0.14         |
| LOKTAK            | 0.00           | 0.00           | 0.00          | 0.00           | 0.00           | 0.00         | 0.37           | 0.65           | -0.28         | -0.28         |
| <b>TOTAL</b>      | <b>4745.54</b> | <b>5294.69</b> | <b>549.15</b> | <b>2974.71</b> | <b>2991.30</b> | <b>16.59</b> | <b>1447.82</b> | <b>1465.75</b> | <b>-17.92</b> | <b>547.82</b> |

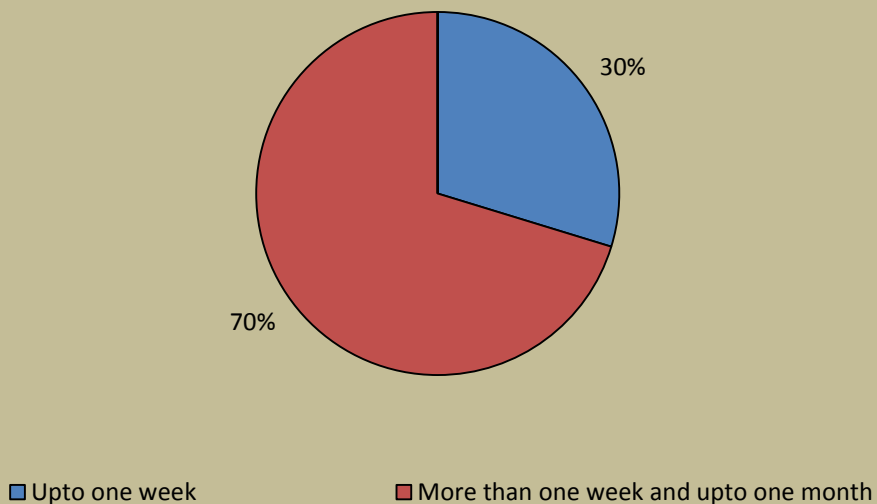
Source: NLDC

\* 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.

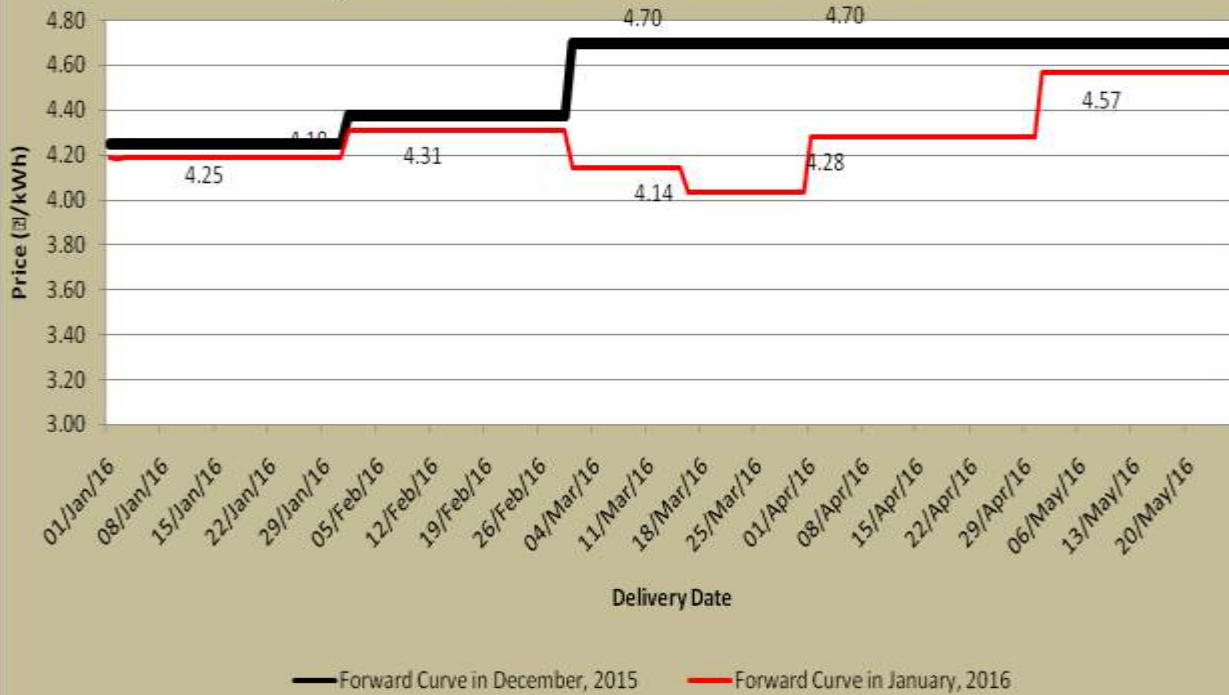
\*\* (-) indicates sale and (+) indicates purchase,

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

**Figure 7: Bilateral Contracts Executed by Traders in January, 2016**



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



**Table-20 : VOLUME AND PRICE OF RENEWABLE ENERGY CERTIFICATES (RECs)  
TRANSACTIONED THROUGH POWER EXCHANGES, DECEMBER 2015**

| Sr.No. | Details of REC Transactions         | IEX     |           | PXIL   |           |
|--------|-------------------------------------|---------|-----------|--------|-----------|
|        |                                     | Solar   | Non-Solar | Solar  | Non Solar |
| A      | Volume of Buy Bid                   | 58682   | 806993    | 2920   | 91446     |
| B      | Volume of Sell Bid                  | 2242890 | 9708928   | 772740 | 4117328   |
| C      | Ratio of Buy Bid to Sell Bid Volume | 0.03    | 0.08      | 0.004  | 0.02      |
| D      | Market Clearing Volume (MWh)        | 58682   | 806993    | 2920   | 91446     |
| E      | Market Clearing Price (₹/MWh)       | 3500    | 1500      | 3500   | 1500      |

Source: IEX and PXIL

Note 1: 1 REC = 1 MWh

Note 2:

| <i>Forbearance and Floor Price w.e.f 1st March 2015</i> |                            |                                  |
|---|----------------------------|----------------------------------|
| Type of REC   | <i>Floor Price (₹/MWh)</i> | <i>Forbearance Price (₹/MWh)</i> |
| <i>Solar</i>  | <i>3500.00</i>             | <i>5800.00</i>                   |
| <i>Non-Solar</i>  | <i>1500.00</i>             | <i>3300.00</i>                   |