

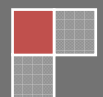


# Monthly Report on Short-term Transactions of Electricity in India

November, 2012



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## Abbreviations

| <b>Abbreviation</b> | <b>Expanded Version</b>                                    |
|---------------------|--|
| ACBIL               | ACB India Limited  |
| ACP                 | Area Clearing Price  |
| ACV                 | Area Clearing Volume                                       |
| AD HYDRO            | AD Hydro Power Limited                                     |
| BALCO               | Bharat Aluminium Company Limited                           |
| CEA                 | Central Electricity Authority                              |
| CERC                | Central Electricity Regulatory Commission                  |
| CGPL                | Coastal Gujarat Power Ltd                                  |
| DCPP                | Donga Mahua Captive Power Plant                            |
| DVC                 | Damodar Valley Corporation                                 |
| IEX                 | Indian Energy Exchange Limited                             |
| JINDAL POWER        | Jindal Power Limited                                       |
| KARCHAM WANGTOO     | Jaypee Karcham Hydro Corporation Limited                   |
| LANKO_AMK           | Lanco Amarkantak Power Private Limited                     |
| LANCO BUDHIL        | Lanco Budhil Hydro Power Private Limited                   |
| LANKO_KONDAPALLY    | Lanco Kondapalli Power Limited                             |
| Meenakshi           | Meenakshi Energy Private Limited                           |
| MP                  | Madhya Pradesh   |
| MUs                 | Million Units  |
| NEEPCO Stations     | North Eastern Electric Power Corporation Limited. Stations |
| NEW Grid            | North, East, North-East and Western Regional Grid          |
| NHPC Stations       | National Hydro Electric Power Corporation Ltd. Stations    |
| NJPC                | Nathpa Jhakri Hydroelectric Power Station                  |
| NLDC                | National Load Despatch Centre                              |
| NSPCL               | NTPC - SAIL Power Company Private Limited                  |
| PX                  | Power Exchange   |
| PXIL                | Power Exchange India Limited                               |
| REC                 | Renewable Energy Certificate                               |
| RGPPL               | Ratnagiri Gas and Power Private Limited                    |
| RLDC                | Regional Load Despatch Centre                              |
| RTC                 | Round - the- Clock   |
| SIMHAPURI           | Simhapuri Energy Private Limited                           |
| SHREE CEMENT        | Shree Cement Limited                                       |
| SR Grid             | Southern Regional Grid                                     |
| STERLITE            | Sterlite Energy Limited                                    |
| UI                  | Unscheduled Interchange                                    |
| UT                  | Union Territory  |

## **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 Unscheduled Interchange (UI). 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 provide information on volume and price of Renewable Energy Certificates (RECs) transacted through power exchanges; and (v) to disclose/disseminate all relevant market information. The analysis of the report for the month of November 2012 is as under:

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

During the month of November 2012, total electricity generation excluding generation from renewable and captive power plants in India was 72601.61MUs (Table-1).

Of the total electricity generation, 7797.48MUs (10.74%) were transacted through short-term, comprising of 4136.86MUs (5.70%) through Bilateral (through traders and term-ahead contracts on Power Exchanges and directly between distribution companies), followed by 2186.13MUs (3.01%) through day ahead collective transactions on Power Exchanges (IEX and PXIL) and 1474.50 MUs (2.03%) through UI (Table-1 & Figure-2).

Of the total short-term transactions, Bilateral constitute 53.05% (41.11% through traders and term-ahead contracts on Power Exchanges and 11.95% directly between distribution companies) followed by 28.04% through day ahead collective transactions on Power Exchanges and 18.91% through UI (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 trading licensees is provided in Table-2 & Figure-4. The trading licensees undertake electricity transactions through bilateral and through power exchanges.

Here, the volume of electricity transacted by the trading licensees includes bilateral transactions and the transactions undertaken through power exchanges. There were 45 trading licensees as on 30.11.2012, of which only 19 have engaged in trading during November 2012. Top 5 trading licenses had a share of 70.61% in the total volume traded by all the licensees.

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 power, whereas decrease indicates the opposite. The HHI below 0.15 indicates non-concentration of market power. The HHI computed for volume of electricity traded by trading licensees (inter-state & intra-state) was 0.1318 for the month of November 2012, which indicates that there was no concentration of market power (Table-2).

The volume of electricity transacted through IEX and PXIL in the day ahead market was 2119.01MUs and 67.12MUs respectively. The volume of total Buy bids and Sale bids was 3340.80 MUs and 3219.29 MUs respectively in IEX and 274.23 MUs and 189.48 MUs respectively in PXIL. The gap between the volume of buy bids and sale bids placed through power exchanges shows that there was more demand in both IEX (1.04 times) and PXIL (1.45 times) when compared with the supply offered through these exchanges.

The volume of electricity transacted in term-ahead market through weekly contracts was 11.20 MUs in IEX (Table-6) and 4.90 MUs in PXIL (Table-7).

## **II: Price of Short-term Transactions of Electricity**

**(i) Price of electricity transacted through Traders:** Weighted average sale price has been computed for the electricity transacted through traders and it was ₹4.43/kWh. Weighted average sale price was also computed for the transactions during Round the Clock (RTC), Peak, and Off-Peak periods separately, and the sale prices were ₹4.39/kWh, ₹4.35/kWh and ₹4.58/kWh respectively. Minimum and Maximum sale prices were ₹2.25/kWh and ₹8.04/kWh respectively (Table-3 & 4).

**(ii) Price of electricity transacted Through Power Exchanges:** 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

₹0.001/kWh, ₹12.00/kWh and ₹3.62/kWh respectively in IEX and ₹0.06/kWh, ₹11.00/kWh and ₹2.89/kWh respectively in PXIL (Table-5).

The weighted average price of electricity transacted in term-ahead market through the weekly contracts was ₹2.65/kWh in IEX (Table-6) and ₹2.25/kWh in PXIL (Table-7).

**(iii) Price of electricity transacted Through UI:** All-India UI price has been computed for NEW Grid and SR Grid separately. The average UI price was ₹1.87/kWh in the NEW Grid and ₹3.30/kWh in the SR Grid. Minimum and Maximum UI prices were ₹0.00/kWh and ₹8.21/kWh respectively in the New Grid, and ₹0.00/kWh and ₹10.80/kWh respectively in the SR Grid (Table-8).

The prices of electricity transacted through trading licensees, power exchanges and UI 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 54.34% of the volume, and these were Delhi, West Bengal, Damodar Valley Corporation, Gujarat and Karnataka. Top 5 regional entities purchased 59.17% of the volume, and these were Madhya Pradesh, Maharashtra, Andhra Pradesh, Jammu & Kashmir and Rajasthan (Table-9, 10 & 19).

Of the total Power Exchange transactions, top 5 regional entities sold 71.09% of the volume, and these were Delhi, Karnataka, Jindal Power Limited, Gujarat and Lanco Amarkantak Power Private Limited. Top 5 regional entities purchased 65.14% of the volume, and these were Gujarat, Rajasthan, Uttar Pradesh, Andhra Pradesh and Kerala (Table-11, 12 & 19).

Of the total UI transactions, top 5 regional entities underdrew 45.02% of the volume, and these were Haryana, Delhi, Uttar Pradesh, Maharashtra and Gujarat. Top 5 regional entities overdrew 32.30% of the volume, and these were Madhya Pradesh, Tamilnadu, Maharashtra, Rajasthan and Uttar Pradesh (Table-13, 14 & 19).

Regional entity-wise total volume of net short-term transactions of electricity i.e. volume of net transactions through bilateral, power exchanges and UI is shown in Table-15 & 19. Top 5 electricity selling regional entities were Delhi, Karnataka, Jindal Power Limited,

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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.

West Bengal and Damodar Valley Corporation. Top 5 electricity purchasing regional entities were Madhya Pradesh, Maharashtra, Andhra Pradesh, Rajasthan and Kerala.

#### **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 2012, congestion occurred in both the power exchanges, the details of which are shown in Table-16. The volume of electricity that could not be cleared due to congestion and could not be transacted through power exchanges is the difference between unconstrained cleared volume (volume of electricity that would have been scheduled, had there been no congestion) and actual cleared volume.

During the month, the volume of electricity that could not be cleared in the power exchanges due to congestion was 17.01% and 122.25% of the actual cleared volume in IEX and PXIL, respectively. In terms of time, congestion occurred was 100% on both the power exchanges.

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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.



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

The concept of Renewable Energy Certificates (RECs) seeks to address mismatch between availability of renewable energy sources 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 market in electricity.

One REC is equivalent to 1 MWh of 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 November 2012 are shown in Table-20. The market clearing volume of Solar RECs transacted on IEX and PXIL were 733 and 486 respectively and the market clearing price of these RECs was ₹12720/MWh and ₹12100/MWh respectively. Market clearing volume of Non-Solar RECs transacted on IEX and PXIL were 54976 and 77376 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 more demand for Solar RECs and less demand for Non-Solar RECs. For Solar RECs, the ratio of buy and sell bids was 1.92 and 1.20 in IEX and PXIL respectively. For Non-Solar RECs, the ratio of buy and sell bids was 0.06 and 0.25 in IEX and PXIL respectively.

## VI: Inferences:

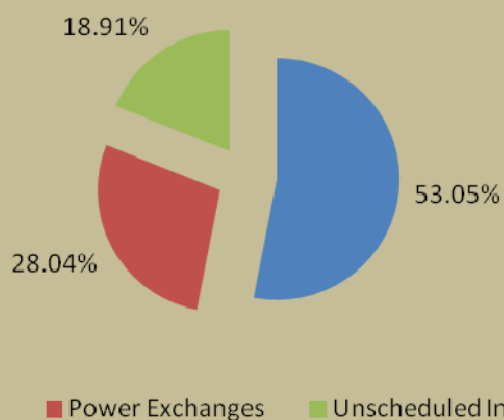
- The percentage of short-term transactions of electricity to total electricity generation was 10.74%.
- Of the total short-term transactions of electricity, 53.05% was transacted through bilateral (through traders and term ahead contracts on power exchanges and directly by distribution companies), followed by 28.04% through Power Exchanges and 18.91% through UI.
- Top 5 trading licensees had a share of 70.61% in the total volume traded by all the trading licensees.
- The Herfindahl Hirschman Index computed for volume of electricity traded by trading licensees was 0.1318, indicating an unconcentration of market power.
- The price of electricity transacted through trading licensees (₹4.43/kWh) was higher when compared with the price of electricity transacted through IEX (₹3.62/kWh) and PXIL (₹2.89/kWh) respectively.
- The price of electricity transacted through UI was ₹1.87/kWh in the NEW Grid and ₹3.30/kWh in the SR Grid.
- The gap between the volume of sale bids and buy bids placed through power exchanges indicates that there was less demand in IEX (1:1.04) and more demand in PXIL (1:1.45) when compared with the supply offered through these exchanges.
- Top 5 electricity selling regional entities were Delhi, Karnataka, Jindal Power Limited, West Bengal and Damodar Valley Corporation. Top 5 electricity purchasing regional entities were Madhya Pradesh, Maharashtra, Andhra Pradesh, Rajasthan and Kerala.
- The volume of electricity that could not be cleared in the power exchanges due to congestion was about 17.01% and 122.25% of the actual cleared volume in IEX and PXIL, respectively. In terms of time, congestion occurred was 100.00% on both the power exchanges.
- The market clearing volume of Solar RECs transacted on IEX and PXIL were 733 and 486 respectively and the market clearing price of these RECs was ₹12720/MWh and ₹12100/MWh respectively. Market clearing volume of Non-Solar RECs transacted on IEX and PXIL were 54976 and 77376 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), NOVEMBER 2012**

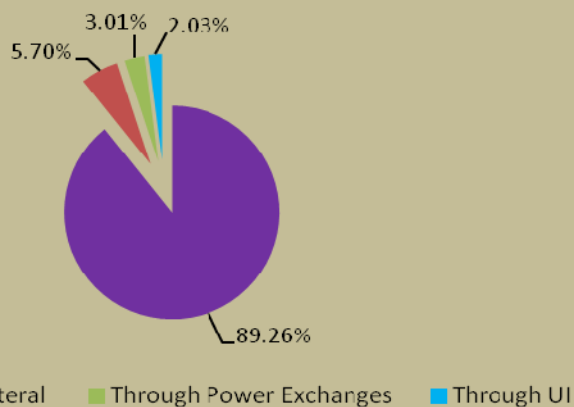
| Sr.No | Short-term transactions     | Volume (MUs)    | % to Volume of short-term transactions | % to Total Generation |
|-------|-----------------------------|-----------------|--|-----------------------|
| 1     | Bilateral                   | 4136.86         | 53.05%                                 | 5.70%                 |
|       | (i) Through Traders and PXs | 3205.35         | 41.11%                                 | 4.41%                 |
|       | (ii) Direct                 | 931.50          | 11.95%                                 | 1.28%                 |
| 2     | Through Power Exchanges     | 2186.13         | 28.04%                                 | 3.01%                 |
|       | (i) IEX                     | 2119.01         | 27.18%                                 | 2.92%                 |
|       | (ii) PXIL                   | 67.12           | 0.86%                                  | 0.09%                 |
| 3     | Through UI                  | 1474.50         | 18.91%                                 | 2.03%                 |
|       | <b>Total</b>                | <b>7797.48</b>  | <b>100.00%</b>                         | <b>10.74%</b>         |
|       | <b>Total Generation</b>     | <b>72601.61</b> | –                                      | –                     |

Source: NLDC

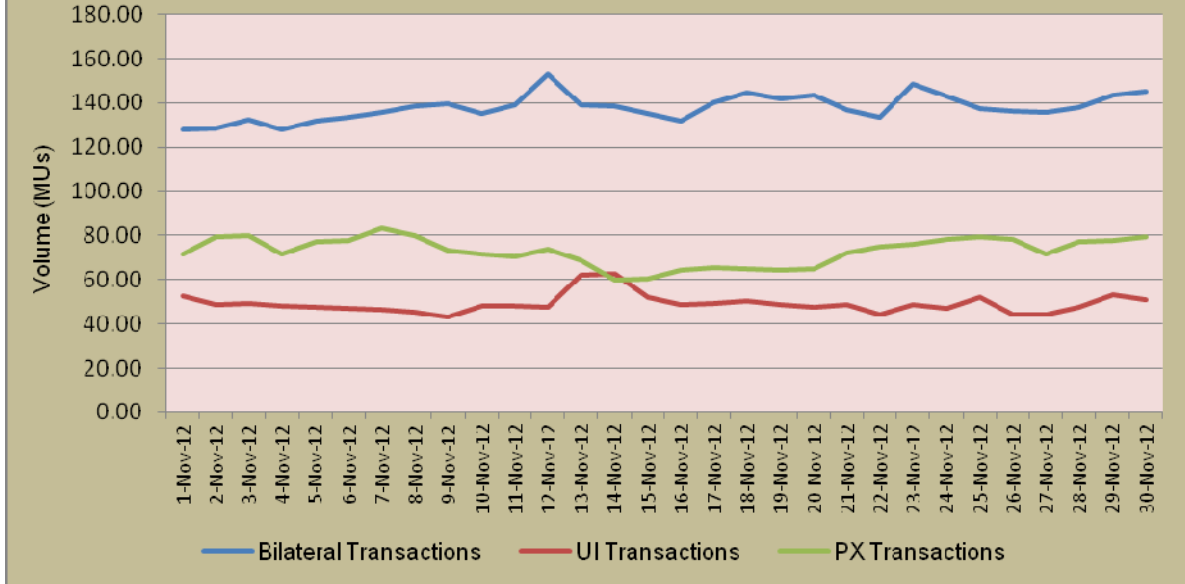
**Figure-1: Volume of Short-term Transactions of Electricity, November 2012**



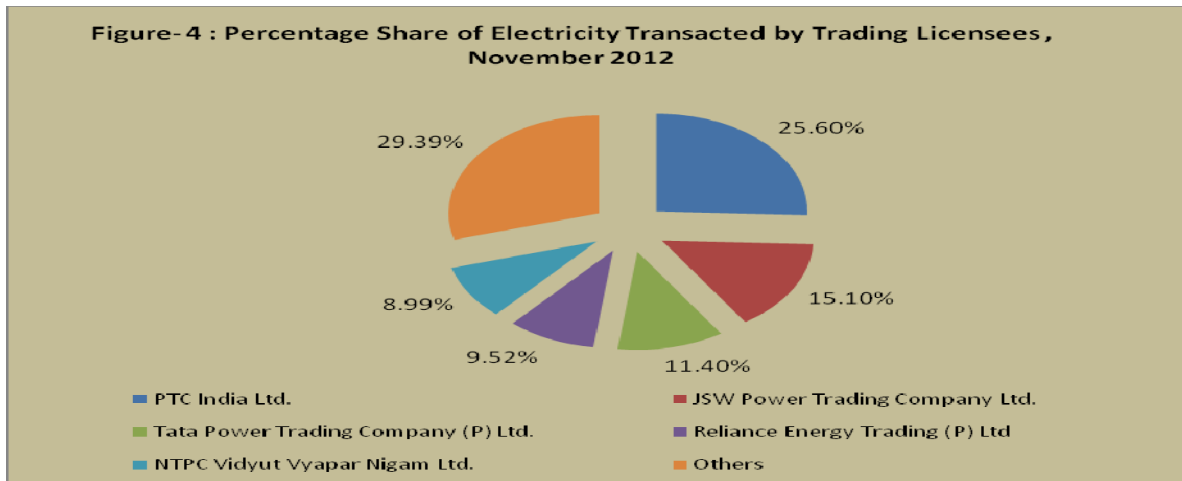
**Figure-2: Volume of Various Kinds of Electricity Transactions in Total Electricity Generation, November 2012**



**Figure-3: Volume of Short-term Transactions of Electricity, November 2012  
(Day-wise)**



| <b>Table-2: PERCENTAGE SHARE OF ELECTRICITY TRANSACTED BY TRADING LICENSEES, NOVEMBER 2012</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.                                | 25.596%  | 0.0655                            |
| 2  | JSW Power Trading Company Ltd.                | 15.103%  | 0.0228                            |
| 3  | Tata Power Trading Company (P) Ltd.           | 11.396%  | 0.0130                            |
| 4  | Reliance Energy Trading (P) Ltd               | 9.524%   | 0.0091                            |
| 5  | NTPC Vidyut Vyapar Nigam Ltd.                 | 8.992%   | 0.0081                            |
| 6  | National Energy Trading & Services Ltd.       | 8.297%   | 0.0069                            |
| 7  | Knowledge Infrastructure Systems (P) Ltd      | 5.354%   | 0.0029                            |
| 8  | Adani Enterprises Ltd.                        | 4.071%   | 0.0017                            |
| 9  | Mittal Processors (P) Ltd.                    | 2.667%   | 0.0007                            |
| 10   | Essar Electric Power Development Corp. Ltd.   | 2.117%   | 0.0004                            |
| 11   | Shree Cement Ltd.                             | 1.725%   | 0.0003                            |
| 12   | GMR Energy Trading Ltd.                       | 1.115%   | 0.0001                            |
| 13   | Instinct Infra & Power Ltd.                   | 1.054%   | 0.0001                            |
| 14   | Jaiprakash Associates Ltd.                    | 0.878%   | 0.0001                            |
| 15   | RPG Power Trading Company Ltd.                | 0.873%   | 0.0001                            |
| 16   | Manikaran Power Ltd.                          | 0.785%   | 0.0001                            |
| 17   | Arunachal Pradesh Power Corporation Pvt. Ltd. | 0.360%   | 0.0000                            |
| 18   | Customized Energy Solutions India Pvt. Ltd.   | 0.048%   | 0.0000                            |
| 19   | Pune Power Development Pvt. Ltd.              | 0.046%   | 0.0000                            |
| <b>TOTAL</b>   |   | <b>100.00%</b>   | <b>0.1318</b>                     |
| <b>Top 5 trading licensees</b>   |   | <b>70.61%</b>  |                                   |
| <i>Note1: Volume of electricity transacted by the trading licensees includes bilateral transactions (inter-state and intra-state) and the transactions undertaken through power exchanges.</i> |   |  |                                   |
| <i>Note2: 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, NOVEMBER 2012 |                  |                               |
|---|------------------|-------------------------------|
| Sr.No   |                  | Sale Price of Traders (₹/kWh) |
| 1   | Minimum          | 2.25                          |
| 2   | Maximum          | 8.04                          |
| 3   | Weighted Average | 4.43                          |

Source: Information submitted by trading licensees

| Table-4: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS (TIME-WISE), NOVEMBER 2012 |                 |                               |
|---|-----------------|-------------------------------|
| Sr.No   | Period of Trade | Sale Price of Traders (₹/kWh) |
| 1   | RTC             | 4.39                          |
| 2   | PEAK            | 4.35                          |
| 3   | OFF PEAK        | 4.58                          |

Source: Information submitted by trading licensees

| Table-5: PRICE OF ELECTRICITY TRANSACTED THROUGH POWER EXCHANGES, NOVEMBER 2012 |                  |                      |                       |
|---|------------------|----------------------|-----------------------|
| Sr.No   | ACP              | Price in IEX (₹/kWh) | Price in PXIL (₹/kWh) |
| 1   | Minimum          | 0.00                 | 0.60                  |
| 2   | Maximum          | 12.00                | 11.00                 |
| 3   | Weighted Average | 3.62                 | 2.89                  |

Source: Information submitted by IEX and PXIL

| Table-6: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF IEX, NOVEMBER 2012 |                                 |                               |                                |
|---|---------------------------------|-------------------------------|--------------------------------|
| Sr.No   | Term ahead contracts            | Actual Scheduled Volume (MUs) | Weighted Average Price (₹/kWh) |
| 1   | Intra-Day Contracts             | 3.94                          | 4.21                           |
| 2   | Day-ahead Contingency Contracts | 1.09                          | 3.20                           |
| 3   | Daily Contracts                 | 8.31                          | 3.92                           |
| 4   | Weekly Contracts                | 11.20                         | 2.65                           |
|   | <b>Total</b>                    | <b>24.54</b>                  | <b>3.35</b>                    |

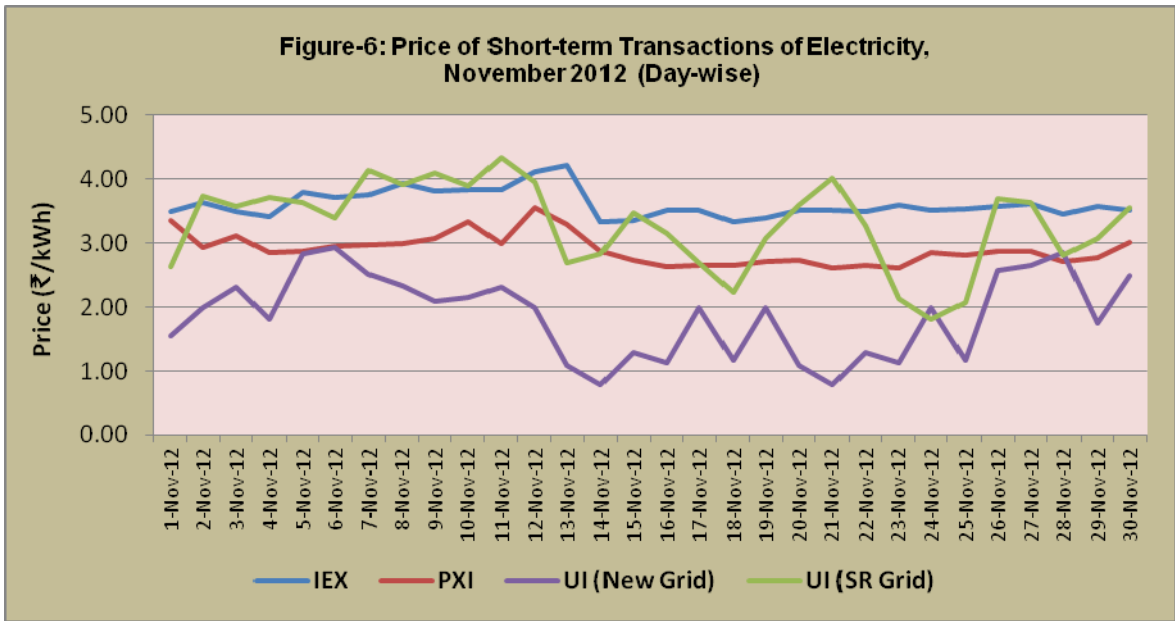
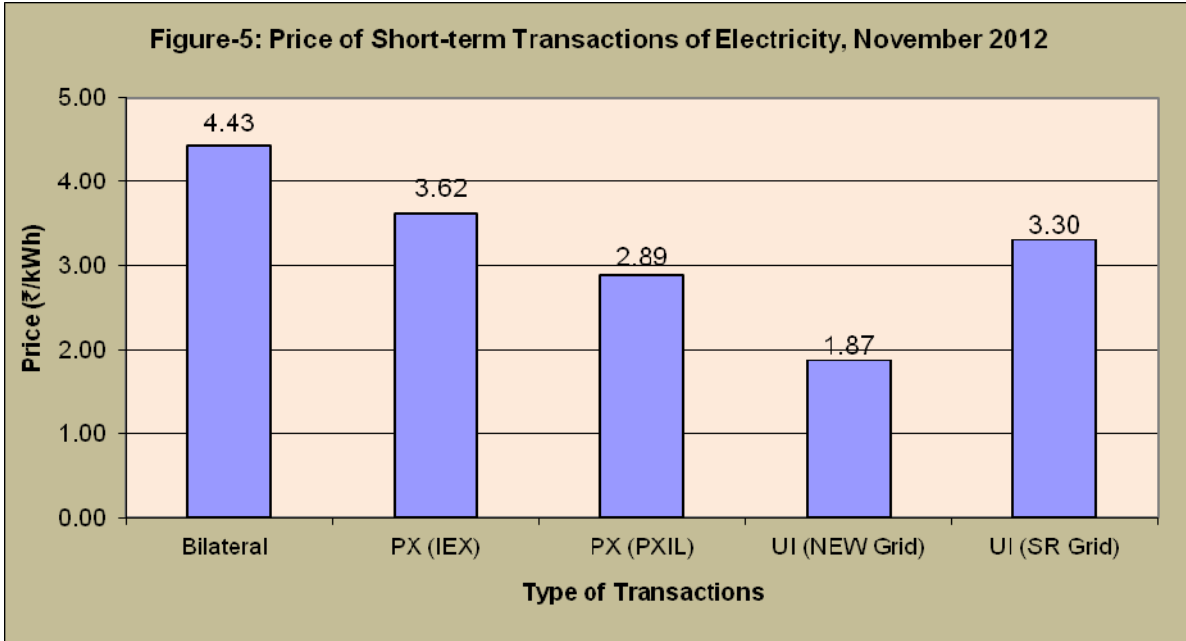
Source: IEX

| Table-7: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF PXIL, NOVEMBER 2012 |                      |                               |                                |
|--|----------------------|-------------------------------|--------------------------------|
| Sr.No  | Term ahead contracts | Actual Scheduled Volume (MUs) | Weighted Average Price (₹/kWh) |
| 1  | Intra-Day Contracts  | 3.90                          | 4.16                           |
| 2  | Weekly Contracts     | 4.90                          | 2.25                           |
|  | <b>Total</b>         | <b>8.80</b>                   | <b>3.10</b>                    |

Source: PXIL

| Table-8: PRICE OF ELECTRICITY TRANSACTED THROUGH UI, NOVEMBER 2012 |         |                           |                          |
|--|---------|---------------------------|--------------------------|
| Sr.No  |         | Price in NEW Grid (₹/kWh) | Price in SR Grid (₹/kWh) |
| 1  | Minimum | 0.00                      | 0.00                     |
| 2  | Maximum | 8.21                      | 10.80                    |
| 3  | Average | 1.87                      | 3.30                     |

Source: NLDC



| <b>Table-9: VOLUME OF ELECTRICITY SALE THROUGH BILATERAL, NOVEMBER 2012</b> |                             |                    |
|---|-----------------------------|--------------------|
| <b>Name of the State/UT/Other Regional Entity</b>                           | <b>Volume of Sale (MUs)</b> | <b>% of Volume</b> |
| Delhi   | 660.90                      | 17.05%             |
| West Bengal   | 457.36                      | 11.80%             |
| DVC   | 358.22                      | 9.24%              |
| Gujarat   | 353.75                      | 9.13%              |
| Karnataka   | 275.76                      | 7.12%              |
| Punjab  | 256.66                      | 6.62%              |
| STERLITE  | 175.02                      | 4.52%              |
| Chattisgarh   | 164.69                      | 4.25%              |
| JINDAL POWER  | 160.69                      | 4.15%              |
| Rajasthan   | 146.36                      | 3.78%              |
| SHREE CEMENT  | 146.36                      | 3.78%              |
| Uttar Pradesh   | 133.79                      | 3.45%              |
| KARCHAM WANGTOO   | 104.65                      | 2.70%              |
| Orissa  | 76.94                       | 1.99%              |
| Himachal Pradesh  | 73.98                       | 1.91%              |
| Haryana   | 72.36                       | 1.87%              |
| SIMHAPURI   | 69.04                       | 1.78%              |
| LANKO_KONDAPALLY  | 41.44                       | 1.07%              |
| Jharkhand   | 28.22                       | 0.73%              |
| MAITHON POWER LTD   | 25.46                       | 0.66%              |
| Andhra Pradesh  | 24.45                       | 0.63%              |
| LANKO_AMK   | 23.70                       | 0.61%              |
| AD HYDRO  | 17.26                       | 0.45%              |
| J & K   | 15.31                       | 0.40%              |
| UT Chandigarh   | 7.20                        | 0.19%              |
| MP  | 2.46                        | 0.06%              |
| Maharashtra   | 2.40                        | 0.06%              |
| Tripura   | 0.82                        | 0.02%              |
| Uttarakhand   | 0.25                        | 0.01%              |
| <b>Total</b>  | <b>3875.50</b>              | <b>100.00%</b>     |
| <b>Volume of sale by top 5 States</b>                                       | <b>2105.98</b>              | <b>54.34%</b>      |



**Table-10: VOLUME OF ELECTRICITY PURCHASE THROUGH BILATERAL, NOVEMBER 2012**

| <b>Name of the State/UT/Other Regional Entity</b> | <b>Volume of Purchase (MUs)</b> | <b>% of Volume</b> |
|---|---------------------------------|--------------------|
| MP  | 627.35                          | 16.56%             |
| Maharashtra                                       | 544.01                          | 14.36%             |
| Andhra Pradesh                                    | 481.51                          | 12.71%             |
| J & K   | 306.84                          | 8.10%              |
| Rajasthan   | 281.87                          | 7.44%              |
| Uttarakhand                                       | 242.20                          | 6.39%              |
| Bihar   | 210.30                          | 5.55%              |
| Kerala  | 190.99                          | 5.04%              |
| West Bengal                                       | 175.25                          | 4.63%              |
| Tamilnadu   | 158.55                          | 4.18%              |
| Himachal Pradesh                                  | 155.99                          | 4.12%              |
| Jharkhand   | 100.98                          | 2.67%              |
| Uttar Pradesh                                     | 59.15                           | 1.56%              |
| DVC   | 54.51                           | 1.44%              |
| Dadra & Nagar Haveli                              | 47.04                           | 1.24%              |
| Haryana   | 38.45                           | 1.01%              |
| Assam   | 37.54                           | 0.99%              |
| Delhi   | 33.58                           | 0.89%              |
| Meghalaya   | 13.66                           | 0.36%              |
| Punjab  | 13.54                           | 0.36%              |
| Goa   | 9.60                            | 0.25%              |
| Sikkim  | 2.73                            | 0.07%              |
| Gujarat   | 2.05                            | 0.05%              |
| Meenakshi   | 0.95                            | 0.03%              |
| <b>Total</b>                                      | <b>3788.65</b>                  | <b>100.00%</b>     |
| <b>Volume of sale by top 5 States</b>             | <b>2241.58</b>                  | <b>59.17%</b>      |

| <b>Table-11: VOLUME OF ELECTRICITY SALE THROUGH POWER EXCHANGES, NOVEMBER 2012</b> |                             |                    |
|--|-----------------------------|--------------------|
| <b>Name of the State/UT/Other Regional Entity</b>                                  | <b>Volume of Sale (MUs)</b> | <b>% of Volume</b> |
| Delhi  | 478.11                      | 21.87%             |
| Karnataka  | 373.97                      | 17.11%             |
| JINDAL POWER   | 271.77                      | 12.43%             |
| Gujarat  | 267.55                      | 12.24%             |
| LANKO_AMK  | 162.75                      | 7.44%              |
| West Bengal  | 78.56                       | 3.59%              |
| Andhra Pradesh   | 70.45                       | 3.22%              |
| DCPP   | 47.89                       | 2.19%              |
| NHPC Stations  | 43.19                       | 1.98%              |
| Maharashtra  | 42.49                       | 1.94%              |
| KARCHAM WANGTOO  | 41.42                       | 1.89%              |
| Chattisgarh  | 39.73                       | 1.82%              |
| Punjab   | 31.43                       | 1.44%              |
| STERLITE   | 26.65                       | 1.22%              |
| Uttar Pradesh  | 24.67                       | 1.13%              |
| Orissa   | 23.36                       | 1.07%              |
| MP   | 21.95                       | 1.00%              |
| J & K  | 21.94                       | 1.00%              |
| NEEPCO Stations  | 20.18                       | 0.92%              |
| DVC  | 19.97                       | 0.91%              |
| SHREE CEMENT   | 18.44                       | 0.84%              |
| Himachal Pradesh   | 11.80                       | 0.54%              |
| Rajasthan  | 11.16                       | 0.51%              |
| ACBIL  | 10.87                       | 0.50%              |
| Sikkim   | 10.83                       | 0.50%              |
| Uttarakhand  | 6.67                        | 0.31%              |
| UT Chandigarh  | 3.39                        | 0.15%              |
| LANCO BUDHIL   | 1.52                        | 0.07%              |
| Mizoram  | 1.31                        | 0.06%              |
| SIMHAPURI  | 0.66                        | 0.03%              |
| Meghalaya  | 0.59                        | 0.03%              |
| AD HYDRO   | 0.30                        | 0.01%              |
| MAITHON POWER LTD  | 0.28                        | 0.01%              |
| BALCO  | 0.24                        | 0.01%              |
| Assam  | 0.02                        | 0.00%              |
| <b>Total</b>   | <b>2186.13</b>              | <b>100.00%</b>     |
| <b>Volume of sale by top 5 States</b>  | <b>1554.15</b>              | <b>71.09%</b>      |

**Table-12: VOLUME OF ELECTRICITY PURCHASE THROUGH POWER EXCHANGES,  
NOVEMBER 2012**

| <b>Name of the State/UT/Other Regional Entity</b> | <b>Volume of Purchase (MUs)</b> | <b>% of Volume</b> |
|---|---------------------------------|--------------------|
| Gujarat   | 419.34                          | 19.18%             |
| Rajasthan   | 399.41                          | 18.27%             |
| Uttar Pradesh                                     | 241.08                          | 11.03%             |
| Andhra Pradesh                                    | 188.46                          | 8.62%              |
| Kerala  | 175.66                          | 8.04%              |
| Tamilnadu   | 141.82                          | 6.49%              |
| Punjab  | 126.39                          | 5.78%              |
| Haryana   | 124.53                          | 5.70%              |
| Maharashtra                                       | 117.79                          | 5.39%              |
| MP  | 98.64                           | 4.51%              |
| West Bengal                                       | 48.19                           | 2.20%              |
| Assam   | 36.91                           | 1.69%              |
| Uttarakhand                                       | 32.56                           | 1.49%              |
| Himachal Pradesh                                  | 16.02                           | 0.73%              |
| Arunachal Pradesh                                 | 6.22                            | 0.28%              |
| J & K   | 3.84                            | 0.18%              |
| Meghalaya   | 3.51                            | 0.16%              |
| Chattisgarh                                       | 2.64                            | 0.12%              |
| Karnataka   | 1.72                            | 0.08%              |
| Goa   | 0.75                            | 0.03%              |
| UT Chandigarh                                     | 0.49                            | 0.02%              |
| Delhi   | 0.14                            | 0.01%              |
| <b>Total</b>                                      | <b>2186.13</b>                  | <b>100.00%</b>     |
| <b>Volume of purchase by top 5 States</b>         | <b>1423.94</b>                  | <b>65.14%</b>      |

| <b>Table-13: VOLUME OF ELECTRICITY EXPORT THROUGH UI, NOVEMBER 2012</b> |                               |                    |
|---|-------------------------------|--------------------|
| <b>Name of the State/UT/Other Regional Entity</b>                       | <b>Volume of Export (MUs)</b> | <b>% of Volume</b> |
| Haryana   | 202.98                        | 16.67%             |
| Delhi   | 101.54                        | 8.34%              |
| Uttar Pradesh   | 93.18                         | 7.65%              |
| Maharashtra   | 81.32                         | 6.68%              |
| Gujarat   | 69.11                         | 5.68%              |
| Chattisgarh   | 60.06                         | 4.93%              |
| Rajasthan   | 58.64                         | 4.82%              |
| NHPC Stations   | 48.74                         | 4.00%              |
| LANKO_AMK   | 40.38                         | 3.32%              |
| Karnataka   | 34.88                         | 2.87%              |
| Punjab  | 34.53                         | 2.84%              |
| Andhra Pradesh  | 31.64                         | 2.60%              |
| JINDAL POWER  | 30.12                         | 2.47%              |
| Orissa  | 28.88                         | 2.37%              |
| J & K   | 27.51                         | 2.26%              |
| Pondicherry   | 23.83                         | 1.96%              |
| West Bengal   | 20.29                         | 1.67%              |
| Dadra & Nagar Haveli  | 19.40                         | 1.59%              |
| Jharkhand   | 17.79                         | 1.46%              |
| Goa   | 15.30                         | 1.26%              |
| MP  | 14.48                         | 1.19%              |
| STERLITE  | 13.65                         | 1.12%              |
| Tamilnadu   | 13.50                         | 1.11%              |
| Bihar   | 13.37                         | 1.10%              |
| Daman and Diu   | 10.73                         | 0.88%              |
| Assam   | 10.29                         | 0.85%              |
| DVC   | 9.60                          | 0.79%              |
| NJPC  | 9.09                          | 0.75%              |
| Uttarakhand   | 8.72                          | 0.72%              |
| Tripura   | 7.75                          | 0.64%              |
| MAITHON POWER LTD   | 6.20                          | 0.51%              |
| Sikkim  | 5.68                          | 0.47%              |
| DCPP  | 5.63                          | 0.46%              |
| BALCO   | 5.56                          | 0.46%              |
| NEEPCO Stations   | 5.11                          | 0.42%              |
| Manipur   | 5.07                          | 0.42%              |
| ACBIL   | 4.59                          | 0.38%              |
| UT Chandigarh   | 4.20                          | 0.35%              |
| Himachal Pradesh  | 3.89                          | 0.32%              |
| KARCHAM WANGTOO   | 3.13                          | 0.26%              |
| CGPL  | 2.88                          | 0.24%              |
| NSPCL   | 1.96                          | 0.16%              |
| SHREE CEMENT  | 1.87                          | 0.15%              |
| Arunachal Pradesh   | 1.67                          | 0.14%              |
| RGPPL(Dabhol)   | 1.61                          | 0.13%              |
| Kerala  | 1.47                          | 0.12%              |
| Mizoram   | 1.17                          | 0.10%              |
| Nagaland  | 1.02                          | 0.08%              |
| Meghalaya   | 0.98                          | 0.08%              |
| SIMHAPURI   | 0.94                          | 0.08%              |
| AD HYDRO  | 0.94                          | 0.08%              |
| LANKO_KONDAPALLY  | 0.64                          | 0.05%              |
| <b>Total</b>  | <b>1217.48</b>                | <b>100.00%</b>     |
| <b>Volume of Export by top 5 States</b>                                 | <b>548.13</b>                 | <b>45.02%</b>      |

| <b>Table-14: VOLUME OF ELECTRICITY IMPORT THROUGH UI, NOVEMBER 2012</b> |                               |                    |
|---|-------------------------------|--------------------|
| <b>Name of the State/UT/Other Regional Entity</b>                       | <b>Volume of Import (MUs)</b> | <b>% of Volume</b> |
| MP  | 132.68                        | 10.59%             |
| Tamilnadu   | 77.91                         | 6.22%              |
| Maharashtra   | 68.71                         | 5.49%              |
| Rajasthan   | 67.84                         | 5.42%              |
| Uttar Pradesh   | 57.32                         | 4.58%              |
| DVC   | 56.20                         | 4.49%              |
| Kerala  | 55.82                         | 4.46%              |
| Himachal Pradesh  | 54.15                         | 4.32%              |
| Punjab  | 50.35                         | 4.02%              |
| J & K   | 50.06                         | 4.00%              |
| West Bengal   | 48.43                         | 3.87%              |
| Orissa  | 47.79                         | 3.82%              |
| NHPC Stations   | 47.21                         | 3.77%              |
| Uttarakhand   | 45.02                         | 3.59%              |
| Gujarat   | 44.46                         | 3.55%              |
| Andhra Pradesh  | 36.65                         | 2.93%              |
| CGPL  | 31.97                         | 2.55%              |
| Karnataka   | 27.11                         | 2.16%              |
| STERLITE  | 25.16                         | 2.01%              |
| Chattisgarh   | 24.08                         | 1.92%              |
| MAITHON POWER LTD   | 19.92                         | 1.59%              |
| Bihar   | 19.63                         | 1.57%              |
| Meghalaya   | 16.19                         | 1.29%              |
| Assam   | 15.85                         | 1.27%              |
| Jharkhand   | 14.76                         | 1.18%              |
| RGPPL(Dabhol)   | 11.16                         | 0.89%              |
| Goa   | 8.25                          | 0.66%              |
| Arunachal Pradesh   | 8.08                          | 0.65%              |
| Nagaland  | 7.08                          | 0.57%              |
| NJPC  | 6.99                          | 0.56%              |
| DCPP  | 6.71                          | 0.54%              |
| UT Chandigarh   | 6.53                          | 0.52%              |
| JINDAL POWER  | 5.84                          | 0.47%              |
| Manipur   | 5.71                          | 0.46%              |
| Dadra & Nagar Haveli  | 5.63                          | 0.45%              |
| SIMHAPURI   | 5.36                          | 0.43%              |
| Haryana   | 4.88                          | 0.39%              |
| Delhi   | 4.85                          | 0.39%              |
| Mizoram   | 4.05                          | 0.32%              |
| KARCHAM WANGTOO   | 3.62                          | 0.29%              |
| NEEPCO Stations   | 3.62                          | 0.29%              |
| SHREE CEMENT  | 3.15                          | 0.25%              |
| Daman and Diu   | 2.64                          | 0.21%              |
| LANKO_KONDAPALLY  | 2.58                          | 0.21%              |
| ACBIL   | 2.36                          | 0.19%              |
| LANKO_AMK   | 2.05                          | 0.16%              |
| Tripura   | 2.01                          | 0.16%              |
| NSPCL   | 1.48                          | 0.12%              |
| Sikkim  | 1.04                          | 0.08%              |
| AD HYDRO  | 0.70                          | 0.06%              |
| Pondicherry   | 0.56                          | 0.04%              |
| BALCO   | 0.18                          | 0.01%              |
| <b>Total</b>  | <b>1252.35</b>                | <b>100.00%</b>     |
| <b>Volume of Export by top 5 States</b>                                 | <b>404.46</b>                 | <b>32.30%</b>      |

**Table-15: TOTAL VOLUME OF NET SHORT-TERM TRANSACTIONS OF ELECTRICITY (REGIONAL ENTITY-WISE), NOVEMBER 2012**

| Sr.No. | Name of the State/UT/Other Regional Entity | Total volume of net short-term transactions of electricity* |
|--------|--|---|
| 1      | MP   | 819.78  |
| 2      | Maharashtra                                | 604.31  |
| 3      | Andhra Pradesh                             | 580.08  |
| 4      | Rajasthan                                  | 532.97  |
| 5      | Kerala                                     | 421.00  |
| 6      | Tamilnadu                                  | 364.78  |
| 7      | Uttarakhand                                | 304.13  |
| 8      | J & K                                      | 295.98  |
| 9      | Bihar                                      | 216.56  |
| 10     | Himachal Pradesh                           | 136.49  |
| 11     | Uttar Pradesh                              | 105.90  |
| 12     | Assam                                      | 80.00   |
| 13     | Jharkhand                                  | 69.73   |
| 14     | Dadra & Nagar Haveli                       | 33.27   |
| 15     | Meghalaya                                  | 31.78   |
| 16     | CGPL                                       | 29.09   |
| 17     | Arunachal Pradesh                          | 12.64   |
| 18     | RGPPPL(Dabhol)                             | 9.56  |
| 19     | Nagaland                                   | 6.05  |
| 20     | Goa  | 3.30  |
| 21     | Mizoram                                    | 1.56  |
| 22     | Meenakshi                                  | 0.95  |
| 23     | Manipur                                    | 0.65  |
| 24     | NSPCL                                      | -0.47   |
| 25     | LANCO BUDHIL                               | -1.52   |
| 26     | NJPC                                       | -2.10   |
| 27     | BALCO                                      | -5.61   |
| 28     | Tripura                                    | -6.57   |
| 29     | UT Chandigarh                              | -7.77   |
| 30     | Daman and Diu                              | -8.09   |
| 31     | MAITHON POWER LTD                          | -12.02  |
| 32     | Sikkim                                     | -12.75  |
| 33     | ACBIL                                      | -13.10  |
| 34     | AD HYDRO                                   | -17.79  |
| 35     | NEEPCO Stations                            | -21.67  |
| 36     | Pondicherry                                | -23.28  |
| 37     | LANKO_KONDAPALLY                           | -39.50  |
| 38     | NHPC Stations                              | -44.73  |
| 39     | DCPP                                       | -46.80  |
| 40     | SIMHAPURI                                  | -65.27  |
| 41     | Orissa                                     | -81.39  |
| 42     | Haryana                                    | -107.48   |
| 43     | Punjab                                     | -132.34   |
| 44     | KARCHAM WANGTOO                            | -145.58   |
| 45     | SHREE CEMENT                               | -163.52   |
| 46     | STERLITE                                   | -190.16   |
| 47     | LANKO_AMK                                  | -223.39   |
| 48     | Gujarat                                    | -224.57   |
| 49     | Chattisgarh                                | -237.76   |
| 50     | DVC  | -277.09   |
| 51     | West Bengal                                | -284.35   |
| 52     | JINDAL POWER                               | -456.73   |
| 53     | Karnataka                                  | -655.78   |
| 54     | Delhi                                      | -1201.98  |

\* 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 2012</b>    |  |            |             |
|---|--|------------|-------------|
|   | <b>Details of Congestion</b>   | <b>IEX</b> | <b>PXIL</b> |
| A   | Unconstrained Cleared Volume* (MUs)  | 2479.54    | 149.17      |
| B   | Actual Cleared Volume and hence scheduled (MUs)  | 2119.01    | 67.12       |
| C   | Volume of electricity that could not be cleared and hence not scheduled because of congestion (MUs) (A-B)                            | 360.54     | 82.05       |
| D   | Volume of electricity that could not be cleared as % to Actual Cleared Volume  | 17.01%     | 122.25%     |
| E   | Percentage of the time congestion occurred during the month (Number of hours congestion occurred/Total number of hours in the month) | 100.00%    | 100.00%     |
| F   | Congestion occurrence (%) time block wise  |            |             |
|   | 0.00 - 6.00 hours  | 25.00%     | 25.00%      |
|   | 6.00 - 12.00 hours   | 25.00%     | 25.00%      |
|   | 12.00 - 18.00 hours  | 25.00%     | 25.00%      |
|   | 18.00 - 24.00 hours  | 25.00%     | 25.00%      |
| <i>* This power would have been scheduled had there been no congestion.</i> |  |            |             |
| <i>Source: IEX &amp; PXIL</i>   |  |            |             |

| <b>Table-17: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY IN INDIA (MUs), NOVEMBER 2012 (DAY-WISE)</b> |                                  |               |   |              |  | <b>Total Electricity Generation (MUs) as given at CEA Website*</b> |
|--|----------------------------------|---------------|---|--------------|--|--|
| <b>Date</b>  | <b>Bilateral</b>                 |               | <b>Power Exchange (Area Clearing Volume# of day ahead market)</b> |              | <b>Unscheduled Interchange (Over Drawl+Under Generation)</b> |  |
|  | <b>Through Traders and PXs**</b> | <b>Direct</b> | <b>IEX</b>  | <b>PXI</b>   |  |  |
| 1-Nov-12   | 97.09                            | 30.61         | 70.90   | 0.79         | 52.64  | 2350   |
| 2-Nov-12   | 99.25                            | 29.35         | 78.42   | 0.75         | 48.53  | 2382   |
| 3-Nov-12   | 103.66                           | 28.80         | 78.54   | 1.62         | 49.47  | 2382   |
| 4-Nov-12   | 100.35                           | 27.84         | 69.97   | 1.77         | 48.18  | 2361   |
| 5-Nov-12   | 102.27                           | 29.53         | 75.45   | 1.43         | 47.68  | 2433   |
| 6-Nov-12   | 103.01                           | 30.68         | 76.17   | 1.60         | 47.19  | 2448   |
| 7-Nov-12   | 105.44                           | 30.45         | 80.42   | 3.13         | 46.36  | 2472   |
| 8-Nov-12   | 106.54                           | 31.76         | 76.82   | 2.99         | 45.25  | 2465   |
| 9-Nov-12   | 108.83                           | 30.86         | 70.55   | 2.88         | 43.16  | 2480   |
| 10-Nov-12  | 103.59                           | 31.51         | 69.49   | 1.95         | 47.91  | 2470   |
| 11-Nov-12  | 106.00                           | 33.33         | 68.21   | 2.22         | 48.36  | 2447   |
| 12-Nov-12  | 112.53                           | 40.35         | 71.40   | 2.18         | 47.72  | 2420   |
| 13-Nov-12  | 110.41                           | 28.59         | 66.39   | 2.42         | 61.92  | 2394   |
| 14-Nov-12  | 110.00                           | 28.58         | 57.68   | 2.46         | 62.69  | 2348   |
| 15-Nov-12  | 106.86                           | 28.38         | 58.25   | 2.19         | 52.11  | 2338   |
| 16-Nov-12  | 102.59                           | 29.17         | 61.92   | 2.42         | 48.59  | 2390   |
| 17-Nov-12  | 103.23                           | 36.97         | 62.72   | 2.45         | 49.08  | 2396   |
| 18-Nov-12  | 111.73                           | 32.90         | 62.07   | 2.60         | 50.33  | 2359   |
| 19-Nov-12  | 110.12                           | 31.54         | 61.83   | 2.46         | 48.57  | 2422   |
| 20-Nov-12  | 109.97                           | 33.73         | 62.81   | 1.80         | 47.42  | 2432   |
| 21-Nov-12  | 104.47                           | 32.47         | 70.20   | 1.81         | 48.74  | 2322   |
| 22-Nov-12  | 101.29                           | 32.47         | 72.59   | 2.24         | 44.46  | 2454   |
| 23-Nov-12  | 114.50                           | 34.32         | 73.93   | 2.02         | 48.76  | 2462   |
| 24-Nov-12  | 110.19                           | 33.03         | 76.04   | 2.07         | 47.21  | 2477   |
| 25-Nov-12  | 110.01                           | 27.59         | 76.32   | 3.01         | 52.29  | 2415   |
| 26-Nov-12  | 106.35                           | 29.71         | 74.88   | 3.24         | 44.17  | 2453   |
| 27-Nov-12  | 106.58                           | 28.88         | 68.79   | 2.77         | 44.17  | 2464   |
| 28-Nov-12  | 110.75                           | 27.31         | 73.85   | 3.34         | 47.36  | 2473   |
| 29-Nov-12  | 113.21                           | 30.38         | 75.28   | 2.26         | 53.23  | 2460   |
| 30-Nov-12  | 114.53                           | 30.42         | 77.13   | 2.23         | 50.96  | 2432   |
| <b>Total</b>   | <b>3205.35</b>                   | <b>931.50</b> | <b>2119.01</b>  | <b>67.12</b> | <b>1474.50</b>   | <b>72601.61</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), NOVEMBER 2012  
(DAY-WISE)**

| Market Segment | Day ahead market of IEX |               |             | Day ahead market of PXIL |               |             | Under Draw/Over Draw from the Grid (UI) |               |               |                 |               |               |                 |
|----------------|-------------------------|---------------|-------------|--------------------------|---------------|-------------|---|---------------|---------------|-----------------|---------------|---------------|-----------------|
|                | Date                    | Minimum ACP   | Maximum ACP | Weighted Average Price*  | Minimum ACP   | Maximum ACP | Weighted Average Price*                 | NEW Grid      |               |                 | SR Grid       |               |                 |
|                |                         |               |             |                          |               |             |   | Minimum Price | Maximum Price | Average Price** | Minimum Price | Maximum Price | Average Price** |
| 1-Nov-12       | 0.21                    | 8.15          | 3.50        | 1.50                     | 10.50         | 3.35        | 0.00                                    | 5.06          | 1.56          | 0.00            | 7.37          | 2.64          |                 |
| 2-Nov-12       | 0.86                    | 9.10          | 3.63        | 1.50                     | 4.25          | 2.93        | 0.00                                    | 4.78          | 2.00          | 0.00            | 7.93          | 3.74          |                 |
| 3-Nov-12       | 0.80                    | 11.50         | 3.49        | 1.30                     | 4.35          | 3.12        | 0.00                                    | 7.93          | 2.31          | 0.00            | 7.93          | 3.58          |                 |
| 4-Nov-12       | 0.71                    | 9.10          | 3.41        | 1.50                     | 10.50         | 2.85        | 0.00                                    | 5.63          | 1.81          | 0.17            | 8.49          | 3.71          |                 |
| 5-Nov-12       | 0.69                    | 9.10          | 3.79        | 1.50                     | 10.50         | 2.87        | 0.33                                    | 7.09          | 2.84          | 0.66            | 5.91          | 3.64          |                 |
| 6-Nov-12       | 0.69                    | 9.10          | 3.71        | 1.40                     | 4.88          | 2.95        | 0.50                                    | 7.65          | 2.93          | 0.00            | 5.91          | 3.39          |                 |
| 7-Nov-12       | 0.73                    | 9.10          | 3.76        | 1.40                     | 11.00         | 2.97        | 0.00                                    | 7.93          | 2.52          | 0.33            | 7.93          | 4.13          |                 |
| 8-Nov-12       | 0.73                    | 9.10          | 3.94        | 1.40                     | 10.50         | 2.99        | 0.33                                    | 5.91          | 2.34          | 0.50            | 5.91          | 3.91          |                 |
| 9-Nov-12       | 0.72                    | 9.10          | 3.83        | 1.35                     | 10.50         | 3.07        | 0.00                                    | 5.63          | 2.09          | 0.00            | 7.65          | 4.10          |                 |
| 10-Nov-12      | 0.40                    | 9.15          | 3.85        | 1.30                     | 5.20          | 3.33        | 0.00                                    | 5.63          | 2.15          | 0.66            | 7.09          | 3.91          |                 |
| 11-Nov-12      | 0.08                    | 9.10          | 3.83        | 1.55                     | 5.20          | 2.99        | 0.00                                    | 5.63          | 2.31          | 0.50            | 10.80         | 4.33          |                 |
| 12-Nov-12      | 0.84                    | 9.20          | 4.12        | 1.25                     | 5.20          | 3.55        | 0.00                                    | 5.63          | 1.99          | 0.99            | 5.91          | 3.96          |                 |
| 13-Nov-12      | 0.72                    | 9.20          | 4.22        | 1.20                     | 6.50          | 3.29        | 0.00                                    | 5.06          | 1.08          | 0.00            | 5.63          | 2.69          |                 |
| 14-Nov-12      | 0.001                   | 9.20          | 3.34        | 1.00                     | 5.20          | 2.88        | 0.00                                    | 3.08          | 0.78          | 0.00            | 5.91          | 2.83          |                 |
| 15-Nov-12      | 0.002                   | 9.50          | 3.35        | 1.20                     | 5.05          | 2.73        | 0.00                                    | 3.36          | 1.30          | 0.17            | 5.63          | 3.47          |                 |
| 16-Nov-12      | 0.002                   | 9.20          | 3.51        | 1.50                     | 5.20          | 2.64        | 0.00                                    | 3.36          | 1.12          | 0.00            | 5.63          | 3.15          |                 |
| 17-Nov-12      | 0.001                   | 9.20          | 3.52        | 1.00                     | 4.01          | 2.66        | 0.00                                    | 5.06          | 1.99          | 0.00            | 5.91          | 2.69          |                 |
| 18-Nov-12      | 0.001                   | 9.20          | 3.34        | 1.00                     | 5.20          | 2.66        | 0.00                                    | 4.78          | 1.18          | 0.00            | 5.06          | 2.24          |                 |
| 19-Nov-12      | 0.79                    | 9.20          | 3.39        | 0.90                     | 5.20          | 2.71        | 0.00                                    | 5.63          | 1.99          | 0.17            | 5.91          | 3.08          |                 |
| 20-Nov-12      | 0.79                    | 9.20          | 3.51        | 1.00                     | 5.20          | 2.73        | 0.00                                    | 5.06          | 1.08          | 0.00            | 7.09          | 3.60          |                 |
| 21-Nov-12      | 0.002                   | 9.20          | 3.51        | 0.70                     | 4.00          | 2.62        | 0.00                                    | 3.08          | 0.78          | 1.49            | 7.09          | 4.01          |                 |
| 22-Nov-12      | 0.90                    | 9.20          | 3.50        | 0.60                     | 5.20          | 2.65        | 0.00                                    | 3.36          | 1.30          | 0.00            | 5.91          | 3.28          |                 |
| 23-Nov-12      | 0.85                    | 9.20          | 3.59        | 2.18                     | 4.00          | 2.61        | 0.00                                    | 3.36          | 1.12          | 0.00            | 7.65          | 2.13          |                 |
| 24-Nov-12      | 0.83                    | 9.20          | 3.51        | 2.25                     | 4.00          | 2.86        | 0.00                                    | 5.06          | 1.99          | 0.00            | 4.78          | 1.81          |                 |
| 25-Nov-12      | 0.83                    | 9.20          | 3.54        | 2.38                     | 4.00          | 2.82        | 0.00                                    | 4.78          | 1.18          | 0.00            | 5.06          | 2.07          |                 |
| 26-Nov-12      | 1.20                    | 9.20          | 3.58        | 2.38                     | 4.00          | 2.88        | 0.00                                    | 5.91          | 2.57          | 0.50            | 5.91          | 3.70          |                 |
| 27-Nov-12      | 0.90                    | 9.20          | 3.62        | 2.25                     | 4.00          | 2.87        | 0.00                                    | 7.37          | 2.65          | 0.33            | 5.91          | 3.63          |                 |
| 28-Nov-12      | 0.90                    | 9.20          | 3.45        | 2.10                     | 4.00          | 2.72        | 0.00                                    | 8.21          | 2.85          | 0.00            | 7.37          | 2.81          |                 |
| 29-Nov-12      | 1.00                    | 9.20          | 3.58        | 2.10                     | 4.00          | 2.78        | 0.00                                    | 4.78          | 1.74          | 0.00            | 9.06          | 3.08          |                 |
| 30-Nov-12      | 1.00                    | 12.00         | 3.52        | 2.20                     | 4.00          | 3.01        | 0.00                                    | 7.65          | 2.48          | 0.33            | 5.63          | 3.55          |                 |
|                | <b>0.001#</b>           | <b>12.00#</b> | <b>3.62</b> | <b>0.60#</b>             | <b>11.00#</b> | <b>2.89</b> | <b>0.00#</b>                            | <b>8.21#</b>  | <b>1.87</b>   | <b>0.00#</b>    | <b>10.80#</b> | <b>3.30</b>   |                 |

Source: Data on price of PX transactions from IEX and PXIL and data on UI 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 UI of 96 time blocks of 15 minutes each in a day. UI price includes Ceiling UI Rate +40% additional UI charge.

# Maximum/Minimum in the month

**Table-19: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (REGIONAL ENTITY\*-WISE) (MUs), NOVEMBER 2012**

| Name of the State/UT/Other Regional Entity | Through Bilateral |               |         | Through Power Exchange |               |         | Through UI with Regional Grid |                           |         | Total Net*** |
|--|-------------------|---------------|---------|------------------------|---------------|---------|-------------------------------|---------------------------|---------|--------------|
|  | Sale              | Pur-<br>chase | Net**   | Sale                   | Pur-<br>chase | Net**   | Export<br>(Under<br>Drawl)    | Import<br>(Over<br>Drawl) | Net**   |              |
| Punjab                                     | 256.66            | 13.54         | -243.11 | 31.43                  | 126.39        | 94.96   | 34.53                         | 50.35                     | 15.82   | -132.34      |
| Haryana                                    | 72.36             | 38.45         | -33.91  | 0.00                   | 124.53        | 124.53  | 202.98                        | 4.88                      | -198.10 | -107.48      |
| Rajasthan                                  | 146.36            | 281.87        | 135.52  | 11.16                  | 399.41        | 388.24  | 58.64                         | 67.84                     | 9.20    | 532.97       |
| Delhi                                      | 660.90            | 33.58         | -627.33 | 478.11                 | 0.14          | -477.97 | 101.54                        | 4.85                      | -96.69  | -1201.98     |
| Uttar Pradesh                              | 133.79            | 59.15         | -74.64  | 24.67                  | 241.08        | 216.41  | 93.18                         | 57.32                     | -35.87  | 105.90       |
| Uttarakhand                                | 0.25              | 242.20        | 241.95  | 6.67                   | 32.56         | 25.89   | 8.72                          | 45.02                     | 36.29   | 304.13       |
| Himachal Pradesh                           | 73.98             | 155.99        | 82.01   | 11.80                  | 16.02         | 4.22    | 3.89                          | 54.15                     | 50.26   | 136.49       |
| J & K                                      | 15.31             | 306.84        | 291.53  | 21.94                  | 3.84          | -18.10  | 27.51                         | 50.06                     | 22.55   | 295.98       |
| UT Chandigarh                              | 7.20              | 0.00          | -7.20   | 3.39                   | 0.49          | -2.89   | 4.20                          | 6.53                      | 2.33    | -7.77        |
| MP   | 2.46              | 627.35        | 624.89  | 21.95                  | 98.64         | 76.69   | 14.48                         | 132.68                    | 118.20  | 819.78       |
| Maharashtra                                | 2.40              | 544.01        | 541.61  | 42.49                  | 117.79        | 75.30   | 81.32                         | 68.71                     | -12.60  | 604.31       |
| Gujarat                                    | 353.75            | 2.05          | -351.71 | 267.55                 | 419.34        | 151.78  | 69.11                         | 44.46                     | -24.65  | -224.57      |
| Chattisgarh                                | 164.69            | 0.00          | -164.69 | 39.73                  | 2.64          | -37.09  | 60.06                         | 24.08                     | -35.98  | -237.76      |
| Daman and Diu                              | 0.00              | 0.00          | 0.00    | 0.00                   | 0.00          | 0.00    | 10.73                         | 2.64                      | -8.09   | -8.09        |
| Dadra & Nagar Haveli                       | 0.00              | 47.04         | 47.04   | 0.00                   | 0.00          | 0.00    | 19.40                         | 5.63                      | -13.77  | 33.27        |
| Andhra Pradesh                             | 24.45             | 481.51        | 457.06  | 70.45                  | 188.46        | 118.01  | 31.64                         | 36.65                     | 5.01    | 580.08       |
| Karnataka                                  | 275.76            | 0.00          | -275.76 | 373.97                 | 1.72          | -372.25 | 34.88                         | 27.11                     | -7.78   | -655.78      |
| Kerala                                     | 0.00              | 190.99        | 190.99  | 0.00                   | 175.66        | 175.66  | 1.47                          | 55.82                     | 54.34   | 421.00       |
| Tamilnadu                                  | 0.00              | 158.55        | 158.55  | 0.00                   | 141.82        | 141.82  | 13.50                         | 77.91                     | 64.41   | 364.78       |
| Pondicherry                                | 0.00              | 0.00          | 0.00    | 0.00                   | 0.00          | 0.00    | 23.83                         | 0.56                      | -23.28  | -23.28       |
| Goa  | 0.00              | 9.60          | 9.60    | 0.00                   | 0.75          | 0.75    | 15.30                         | 8.25                      | -7.05   | 3.30         |
| West Bengal                                | 457.36            | 175.25        | -282.11 | 78.56                  | 48.19         | -30.38  | 20.29                         | 48.43                     | 28.14   | -284.35      |
| Orissa                                     | 76.94             | 0.00          | -76.94  | 23.36                  | 0.00          | -23.36  | 28.88                         | 47.79                     | 18.91   | -81.39       |
| Bihar                                      | 0.00              | 210.30        | 210.30  | 0.00                   | 0.00          | 0.00    | 13.37                         | 19.63                     | 6.26    | 216.56       |
| Jharkhand                                  | 28.22             | 100.98        | 72.76   | 0.00                   | 0.00          | 0.00    | 17.79                         | 14.76                     | -3.03   | 69.73        |
| Sikkim                                     | 0.00              | 2.73          | 2.73    | 10.83                  | 0.00          | -10.83  | 5.68                          | 1.04                      | -4.64   | -12.75       |
| DVC  | 358.22            | 54.51         | -303.71 | 19.97                  | 0.00          | -19.97  | 9.60                          | 56.20                     | 46.60   | -277.09      |
| Arunachal Pradesh                          | 0.00              | 0.00          | 0.00    | 0.00                   | 6.22          | 6.22    | 1.67                          | 8.08                      | 6.42    | 12.64        |
| Assam                                      | 0.00              | 37.54         | 37.54   | 0.02                   | 36.91         | 36.89   | 10.29                         | 15.85                     | 5.56    | 80.00        |
| Manipur                                    | 0.00              | 0.00          | 0.00    | 0.00                   | 0.00          | 0.00    | 5.07                          | 5.71                      | 0.65    | 0.65         |
| Meghalaya                                  | 0.00              | 13.66         | 13.66   | 0.59                   | 3.51          | 2.92    | 0.98                          | 16.19                     | 15.21   | 31.78        |
| Mizoram                                    | 0.00              | 0.00          | 0.00    | 1.31                   | 0.00          | -1.31   | 1.17                          | 4.05                      | 2.87    | 1.56         |
| Nagaland                                   | 0.00              | 0.00          | 0.00    | 0.00                   | 0.00          | 0.00    | 1.02                          | 7.08                      | 6.05    | 6.05         |
| Tripura                                    | 0.82              | 0.00          | -0.82   | 0.00                   | 0.00          | 0.00    | 7.75                          | 2.01                      | -5.74   | -6.57        |
| NHPC Stations                              | 0.00              | 0.00          | 0.00    | 43.19                  | 0.00          | -43.19  | 48.74                         | 47.21                     | -1.53   | -44.73       |
| NJPC                                       | 0.00              | 0.00          | 0.00    | 0.00                   | 0.00          | 0.00    | 9.09                          | 6.99                      | -2.10   | -2.10        |
| AD HYDRO                                   | 17.26             | 0.00          | -17.26  | 0.30                   | 0.00          | -0.30   | 0.94                          | 0.70                      | -0.23   | -17.79       |
| KARCHAM WANGTOO                            | 104.65            | 0.00          | -104.65 | 41.42                  | 0.00          | -41.42  | 3.13                          | 3.62                      | 0.49    | -145.58      |
| SHREE CEMENT                               | 146.36            | 0.00          | -146.36 | 18.44                  | 0.00          | -18.44  | 1.87                          | 3.15                      | 1.28    | -163.52      |
| LANCO BUDHIL                               | 0.00              | 0.00          | 0.00    | 1.52                   | 0.00          | -1.52   | 0.00                          | 0.00                      | 0.00    | -1.52        |
| JINDAL POWER                               | 160.69            | 0.00          | -160.69 | 271.77                 | 0.00          | -271.77 | 30.12                         | 5.84                      | -24.27  | -456.73      |
| LANCO_AMK                                  | 23.70             | 0.00          | -22.31  | 162.75                 | 0.00          | -162.75 | 40.38                         | 2.05                      | -38.33  | -223.39      |
| NSPCL                                      | 0.00              | 0.00          | 0.00    | 0.00                   | 0.00          | 0.00    | 1.96                          | 1.48                      | -0.47   | -0.47        |
| ACBIL                                      | 0.00              | 0.00          | 0.00    | 10.87                  | 0.00          | -10.87  | 4.59                          | 2.36                      | -2.23   | -13.10       |
| BALCO                                      | 0.00              | 0.00          | 0.00    | 0.24                   | 0.00          | -0.24   | 5.56                          | 0.18                      | -5.38   | -5.61        |
| RGPPL(Dabhol)                              | 0.00              | 0.00          | 0.00    | 0.00                   | 0.00          | 0.00    | 1.61                          | 11.16                     | 9.56    | 9.56         |
| CGPL                                       | 0.00              | 0.00          | 0.00    | 0.00                   | 0.00          | 0.00    | 2.88                          | 31.97                     | 29.09   | 29.09        |
| DCPP                                       | 0.00              | 0.00          | 0.00    | 47.89                  | 0.00          | -47.89  | 5.63                          | 6.71                      | 1.08    | -46.80       |
| LANCO_KONDAPALLY                           | 41.44             | 0.00          | -41.44  | 0.00                   | 0.00          | 0.00    | 0.64                          | 2.58                      | 1.94    | -39.50       |
| SIMHAPURI                                  | 69.04             | 0.00          | -69.04  | 0.66                   | 0.00          | -0.66   | 0.94                          | 5.36                      | 4.42    | -65.27       |
| Meenakshi                                  | 0.00              | 0.95          | 0.95    | 0.00                   | 0.00          | 0.00    | 0.00                          | 0.00                      | 0.00    | 0.95         |
| STERLITE                                   | 175.02            | 0.00          | -175.02 | 26.65                  | 0.00          | -26.65  | 13.65                         | 25.16                     | 11.51   | -190.16      |
| MAITHON POWER LTD                          | 25.46             | 0.00          | -25.46  | 0.28                   | 0.00          | -0.28   | 6.20                          | 19.92                     | 13.72   | -12.02       |
| NEEPCO Stations                            | 0.00              | 0.00          | 0.00    | 20.18                  | 0.00          | -20.18  | 5.11                          | 3.62                      | -1.49   | -21.67       |

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 UI

| <b>Table-20 : VOLUME AND PRICE OF RENEWABLE ENERGY CERTIFICATES (RECS) TRANSACTED THROUGH POWER EXCHANGES, NOVEMBER 2012</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                   | 1458         | 54976            | 1120         | 77376            |
| B  | Volume of Sell Bid                  | 758          | 921376           | 930          | 308685           |
| C  | Ratio of Buy Bid to Sell Bid Volume | 1.92         | 0.06             | 1.20         | 0.25             |
| D  | Market Clearing Volume (MWh)        | 733          | 54976            | 486          | 77376            |
| E  | Market Clearing Price (₹/MWh)       | 12720        | 1500             | 12100        | 1500             |

Source: IEX and PXIL

Note 1: 1 REC = 1 MWh

Note 2:

| <i>Forbearance and Floor Price w.e.f 1st April 2012</i> |                            |                                  |
|---|----------------------------|----------------------------------|
| Type of REC   | <i>Floor Price (₹/MWh)</i> | <i>Forbearance Price (₹/MWh)</i> |
| <i>Solar</i>  | <i>9300.00</i>             | <i>13400.00</i>                  |
| <i>Non-Solar</i>  | <i>1500.00</i>             | <i>3300.00</i>                   |