

# WEEKLY REPORTING OF OTC CONTRACTS: MONTHLY ANALYSIS (APRIL 2013)

[An analysis of all weekly reports (reporting period 1<sup>st</sup> – 28<sup>th</sup> April 2013) received from licensed-traders for the month of April 2013]



Economics & Power Market Division  
Market Monitoring Cell  
Central Electricity Regulatory Commission

Prepared on 8<sup>th</sup> May 2013

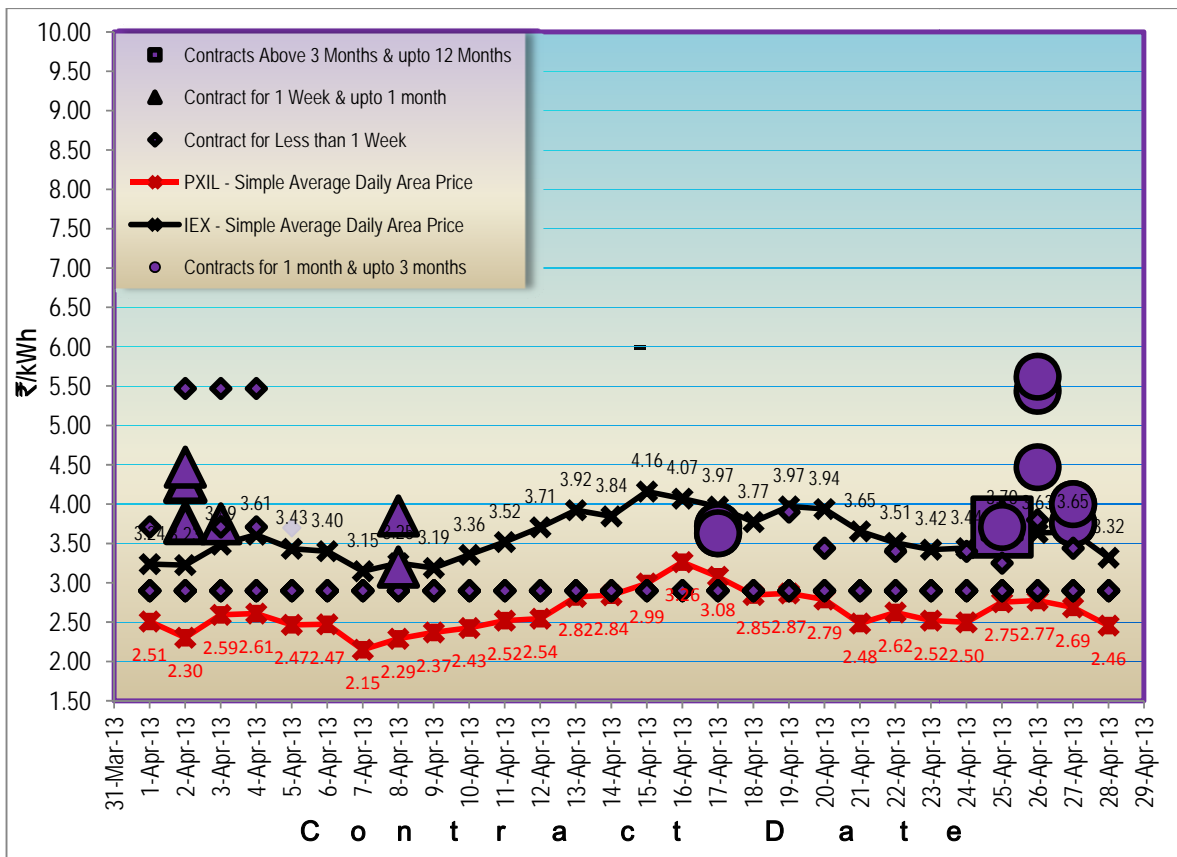
### Snapshot for April 2013

- ✓ The reported short-term contract volume for the month of April (analysis of four weeks) was 764.15MUs whereas the same was 2741.04MUs for the month of March (analysis of five weeks). There is a 72% decrease in reported contract-volume.
- ✓ 61% of total volume has been contracted at above price of ₹4/kWh as compared to 60% during March 2013.
- ✓ Total number of contracts (including Swap & Banking) in April (analysis of four weeks) was 182 by 5 traders whereas in March (analysis of five weeks) was 182 by 7 traders.

## I. Comparison of Prices of Short Term OTC Contracts with Power Exchange Prices (on Contracted Date)

The scatter diagram shows a comparative analysis of price movement in OTC and Power Exchange markets for the period of 1<sup>st</sup> - 28<sup>th</sup> April 2013. As seen in scatter diagram, the contracts were clustered over the 1<sup>st</sup> & 4<sup>th</sup> week of the reported period and the overall price of OTC contracts was in the range of ₹2.9/kWh - ₹5.62/kWh.

Chart 1: Scatter Diagram depicting Price of Electricity for OTC contracts and in Power Exchanges



Note: It may be noted that Power Exchange is a day ahead market with standardized contracts with no transmission corridor reservation while the OTC Contracts are weekly/monthly contracts with flexibility of customization and corridor reservation. The price comparison of OTC-Contracts and Power Exchanges should be seen in this light.

The following table shows the weighted average sale prices of all the contracts reported by traders in a particular week and total contracted volume for the same. (Weights being the respective contracted volume).

**Table 1: Price and Volume of OTC Contracts**

Weeks	Range of Sale Price (₹/kWh)		Weighted Average of Sale Price (₹/kWh)	Total Volume (MUs)
	Min	Max		
1st-7th April 2013	2.90	5.47	4.02	42.93
8th-14th April 2013	2.90	3.85	3.09	9.86
15th-21st April 2013	2.90	3.90	3.59	83.43
22nd-28th April 2013	2.90	5.62	4.73	382.02
<b>Total</b>				<b>518.23</b>

**Table 2: Comparison of Prices in Day Ahead Market with OTC Contracts**

Contract Date	1-Apr-13	2-Apr-13	3-Apr-13	4-Apr-13	5-Apr-13	6-Apr-13	7-Apr-13	8-Apr-13	9-Apr-13	10-Apr-13	11-Apr-13	12-Apr-13	13-Apr-13	14-Apr-13
IEX*(₹/kWh)	3.24	3.23	3.49	3.61	3.43	3.40	3.15	3.25	3.19	3.36	3.52	3.71	3.92	3.84
PXIL*(₹/kWh)	2.51	2.30	2.59	2.61	2.47	2.47	2.15	2.29	2.37	2.43	2.52	2.54	2.82	2.84
OTC Contracts** (₹/kWh)	4.02 (1st-7th Apr. 2013)							3.09 (8-14th Apr. 2013)						

Contract Date (2013)	15-Apr-13	16-Apr-13	17-Apr-13	18-Apr-13	19-Apr-13	20-Apr-13	21-Apr-13	22-Apr-13	23-Apr-13	24-Apr-13	25-Apr-13	26-Apr-13	27-Apr-13	28-Apr-13
IEX*(₹/kWh)	4.16	4.07	3.97	3.77	3.97	3.94	3.65	3.51	3.42	3.44	3.70	3.63	3.65	3.32
PXIL*(₹/kWh)	2.99	3.26	3.08	2.85	2.87	2.79	2.48	2.62	2.52	2.50	2.75	2.77	2.69	2.46
OTC Contracts** (₹/kWh)	3.59 (15th-21st Apr. 2013)							4.73 (22nd-28th Apr. 2013)						

Source: Indian Energy Exchange & Power Exchange of India Ltd. Websites

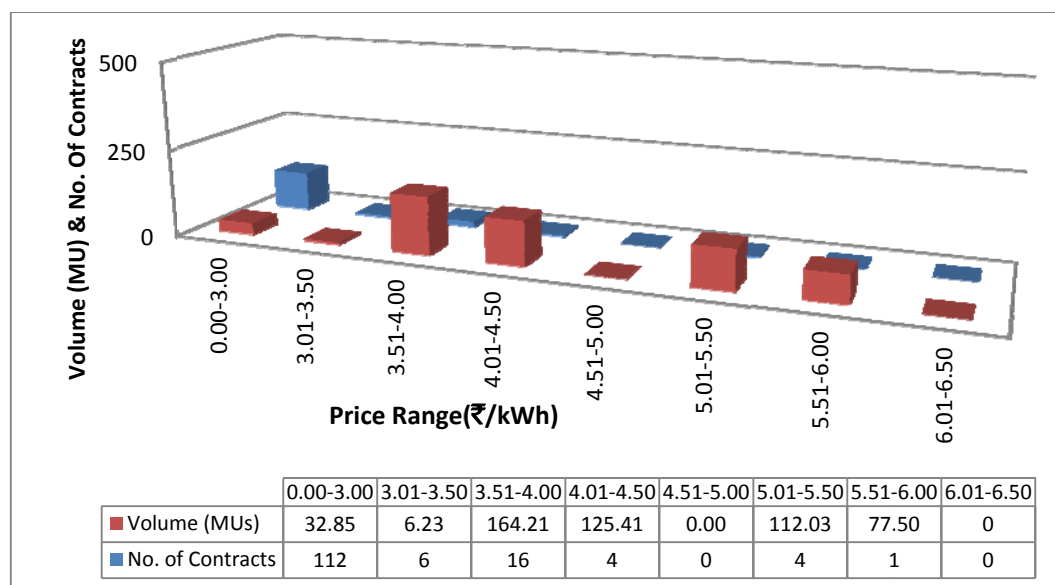
\*Simple Average Area Prices for the Day for all the Bid Areas in Power Exchange

\*\*Weekly Weighted Average Prices for OTC- Contracts

## Observations

1. It is observed that OTC contract prices were higher than the IEX and PXIL prices during the reported period. The minimum price in OTC market was ₹2.90/kWh (contracts from 1<sup>st</sup> to 28<sup>th</sup> April 2013) while in the exchanges (24 hour average price) it was ₹2.15/kWh (PXIL, 7<sup>th</sup> April 2013) during reported period and the maximum price in OTC market was ₹5.62/kWh (26<sup>th</sup> April 2013) which was an 'Off Peak' power contract while for Day-Ahead market at the exchange it was ₹4.16/kWh (IEX, 15<sup>th</sup> April 2013). (It may be noted that Power Exchange is a day ahead market with standardized contracts with no transmission corridor reservation while the OTC Contracts are weekly/monthly contracts with flexibility of customization and transmission corridor reservation. The price comparison of OTC - Contracts and Power Exchanges should be seen in this light.)
2. As far as the number of contracts is concerned, 9 out of totals 143\* contracts were entered at above ₹4/kWh. However, the cumulative volume traded above ₹4/kWh was 314.95\* MUs which is 61% of total OTC contracts for the reported period 1<sup>st</sup> - 28<sup>th</sup> April 2013. There were a total 182 contracts including swap & banking during the reported period.

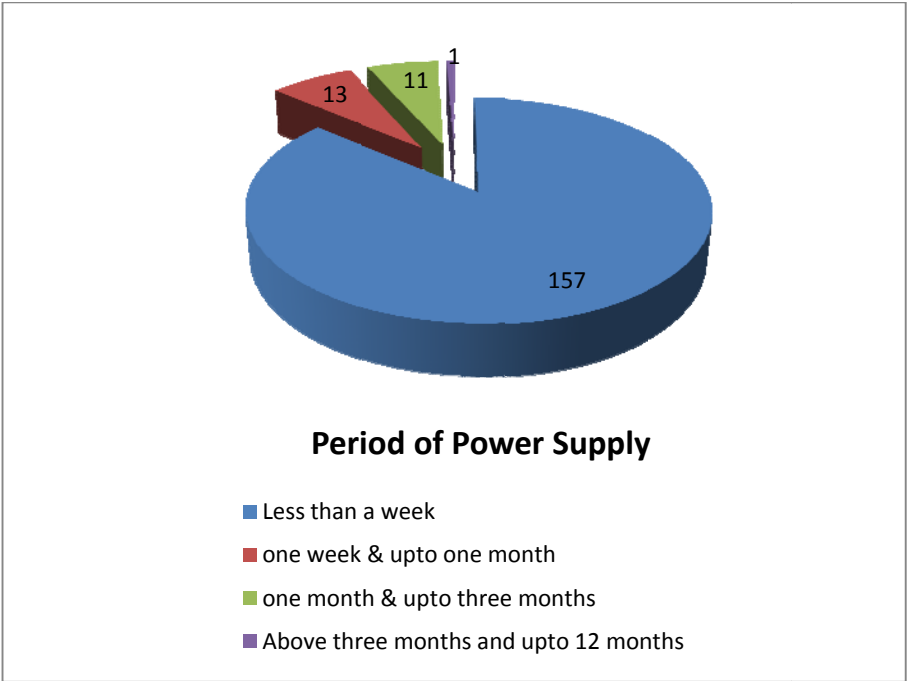
Chart 2: Frequency Distribution of Number of OTC Contracts, Volume and Price Range



\* Excluding swap /banking contracts since they do not have any sale price.

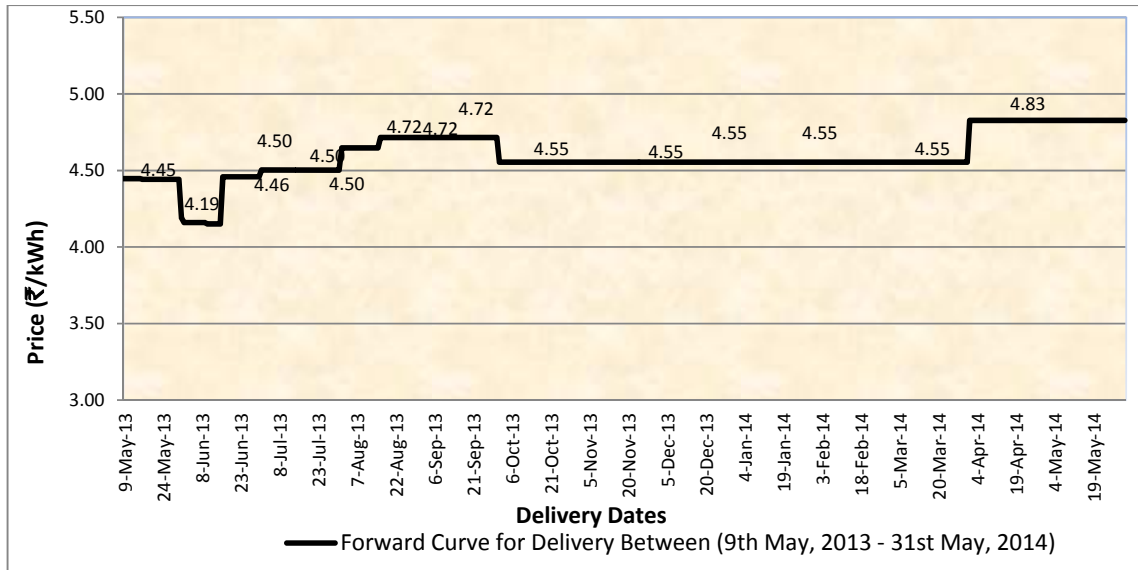
3. The following chart shows the number of contracts reported during April 2013, categorized according to the period of power supply. Total number of contracts reported in April 2013 is 182.

Chart 3: Number of Contracts Reported in April 2013



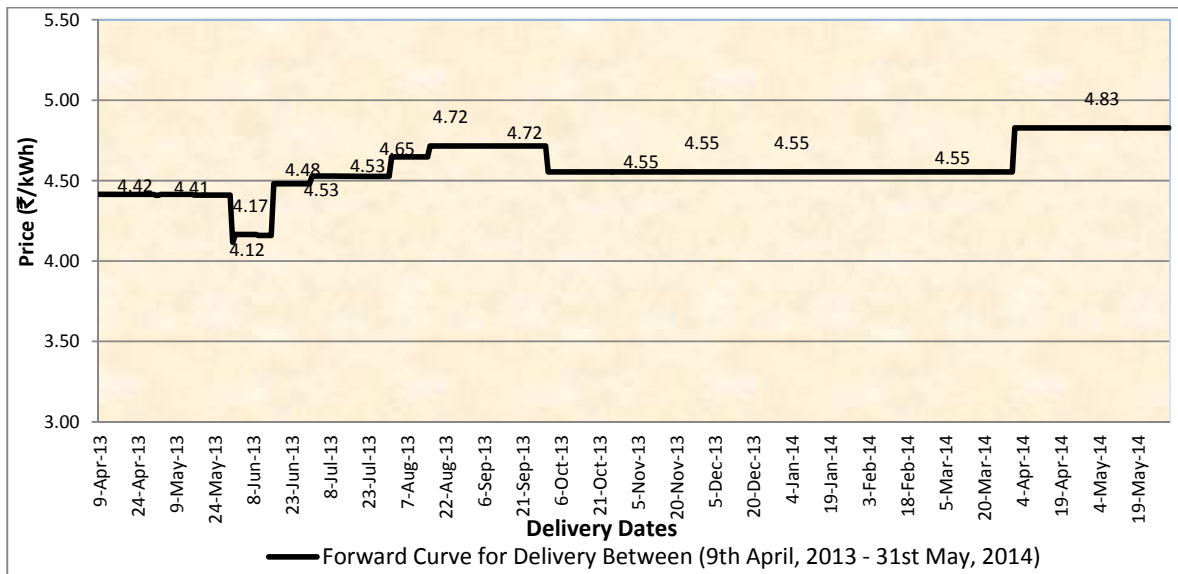
## II. Forward Curve of Power Prices

Chart 4: Forward Curve for the period May 2013 – May 2014 as on 9<sup>th</sup> May, 2013



A forward curve reflects present day's expectation of spot prices for a future period. Accordingly a forward curve has been drawn based on prices of contracts executed now for supply of power for future period. . This forward curve is as on 9<sup>th</sup> May 2013 but based on 143 contract prices reported by trader's upto 28<sup>th</sup> April 2013.

Chart 4.1: Forward Curve for the period April 2013 – May 2014 as on 9<sup>th</sup> April, 2013



### Observations

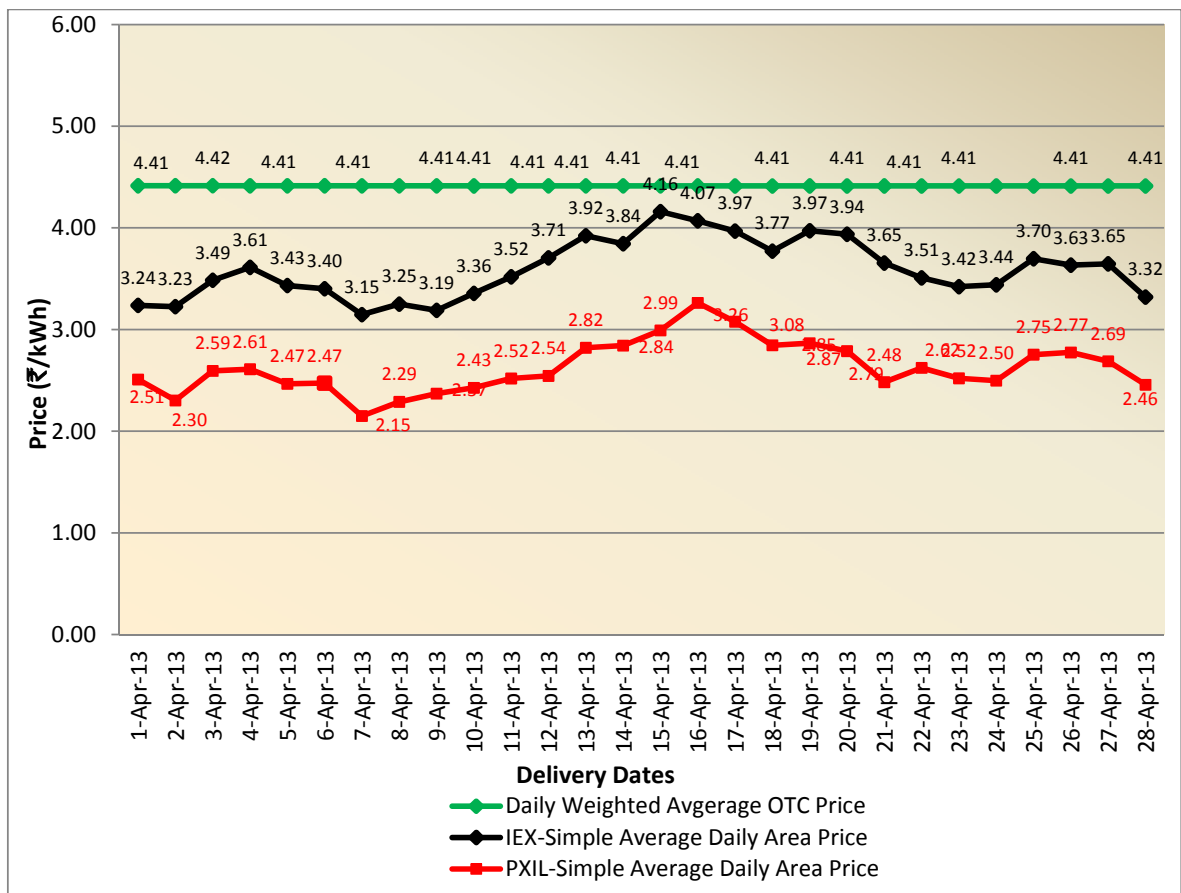
1. The Forward Curve as on 9<sup>th</sup> May 2013 is based on contracts reported upto 28<sup>th</sup> April 13 and the tenure of the curve is for period for 9<sup>th</sup> May 2013 – 31<sup>st</sup> May 2014 period of power delivery). The numbers of contracts reported for the initial months (May and June 2013) were higher (26 and 14 contracts respectively) than those of later months i.e. April to May 2014 (2 contracts for both months). This is in line with the general trend that liquidity is higher for nearer months compared to farther months.
2. A comparison of forward curves (Chart 4 & Chart 4.1) gives us a picture of expected delivery price as on 9<sup>th</sup> May 2013 (Chart 4) vis a vis the expected delivery price as were on 9<sup>th</sup> April (Chart 4.1) for delivery in the period April 2013 – May 2014. In general, the nature of both the forward curves in drawn in April and May 2013 is similar, for both the near and the farther delivery months. On detailed observation it is seen that that the prices for the same delivery period differ depending upon time when contracts have been signed. For instance, prices for expected same delivery i.e. for May 2013 have increased from ₹4.40/kWh in April 2013 to ₹4.43/kWh in May 2013.



### III. Post-facto Comparison of Prices in OTC Contracts and Power Exchanges (on Power Delivery Dates)

The post facto graph shows the average OTC price vis-à-vis power exchanges prices for the last month's power deliveries. Hence this compares the spot Power Exchange prices with OTC deliveries (OTC contracts may have been executed earlier but delivered on the same days as on the exchange spot deliveries). The process of calculating the data points of OTC prices is same as in the forward curve.

Chart 5: Comparison OTC Deliveries and Power Exchange Spot Delivery Price for April 2013



## Observations

1. Delivery prices of the OTC - contracts have been in the narrow range of ₹4.41 to ₹4.42/ kWh while the prices in power exchanges have fluctuated over a range of ₹2.15 to ₹4.16/ kWh during the month of April 2013. The OTC Contracts prices were generally higher than the power exchange prices for the reported period. *(It may be noted that Power Exchange is a day ahead market with standardized contracts with no transmission corridor reservation while the OTC - Contracts are weekly/monthly contracts with flexibility of customization and transmission corridor reservation. The price comparison of OTC - Contracts and Power Exchanges should be seen in this light.)*

Table 3: List of Trading Licensees who have undertaken Contracts in the period 1<sup>st</sup> – 28<sup>th</sup> April 2013\*

Sr.No.	Name of Licensee	1st-7th Apr 13	8th- 14th Apr 13	15th- 21st Apr 13	22nd- 28th Apr 13
1	PTC India Ltd.	Y(39)	Y(37)	Y(39)	Y(40)
2	NTPC Vidyut Vyapar Nigam Ltd.	Y(2)	Y(1)	Y(2)	Y(5)
3	GMR Energy Trading Ltd	Y(3)	NIL	Y(3)	Y(3)
4	Mittal Processors (P) Ltd.	Y(2)	Y(1)	Y(3)	Y(1)
5	Instinct Infra & Power Ltd.	Y(1)	NIL	NIL	NIL
Total No. of Contracts		30	48	55	49
Total for month for all traders		182			


Note 1: Y(): Contracts had been struck (Number of Contracts)

NIL: No Contracts was made during the week

NR: Not Reported


\*Note 2: This table shows list of traders who have reported & undertaken at least one contracts during the reported period. There could be some traders who have reported but did not undertake any contracts.

## I. The Scatter Diagram: Comparison of prices of Short Term OTC Contracts with Power Exchange Prices ( on Contracted Date)

 *Process of Formulation:* The scatter diagram represents the details of OTC contracts undertaken by traders during any particular time period (e.g. for last four or five weeks) for short-term (upto less than a year) transactions of electricity. Each data-point represents contract sale-price on a particular contract date.

The varied shapes are to depict contracts for different time-span, e.g. the squares are for contracts of more than three months but less than a year, largest circles are for contracts which have been made for one or upto three months ahead, the triangles are to represent contracts made for a week or more but for less than one month and smallest ones (daimond shaped) are for one day or more but less than a week period of contracts. In this diagram, no distinction has been made among the traders. The black and red markers connected with lines show the spot prices at the two power exchanges, viz. the Indian Energy Exchange (IEX) and the Power Exchange of India Ltd. (PXIL) on the respective contract dates.

## II. The Forward Curve of Power Price

 *Process of Formulation*

The forward curve has been made based on OTC sale prices reported every week by the traders. For a contract of a full month, the average monthly contract price is considered discretely as the price for each day. Finally, the average daily price for the forward curve is the weighted average daily price for all contracts existing in these days. (Weights being the respective contracted daily volume).

## III. The Post-Facto Graph: Post-facto Comparison of Prices in OTC Contracts and Power Exchanges (on Power Delivery Dates)

 *Process of Formulation*

The post facto graph shows the comparison of daily average OTC price vis-à-vis simple average daily area power exchanges prices for the last month's daily power deliveries. Daily average OTC price is calculated by considering all OTC contracts including daily, weekly, monthly and more than 3-month and up to one year contracts delivered in the period. The average daily price is the weighted average daily price for all contracts

delivered on that day. (Weights being the respective contracted daily volume). For example for a weekly contract the same price is considered discretely as the price for each day of the week, for monthly contract the same price is considered discretely as the price for each day of the month. Then the daily volume weighted average of these weekly/monthly, as the case may be, is calculated and termed a daily average OTC price.

IV. The difference between Scatter Diagram and Post Facto Graph is as follows:

- a) The scatter diagram represents the details of OTC contracts undertaken by traders during any particular time period (e.g. for last five weeks) for short-term (upto less than a year) transactions of electricity. Each data-point represents contract sale-price on a particular contract date.
  - b) The post facto graph shows the average OTC price vis-à-vis power exchanges prices for the last month's power deliveries. It gives a comparison between the spot delivered prices and OTC deliveries (OTC contracts may have been executed earlier but delivered on these same).
- V. The 96 Blocks (24 hours) simple average prices of the 12 bid areas is being termed as simple average daily area price. The Power Exchanges' prices used in the report are calculated using following formulas:

Simple Average Daily Area Price (₹/kWh)

$$= (\sum_{i=1}^{96}(Pi))/96000$$

Where  $P_i$  is the price for different 15 minute time blocks in a day