WEEKLY REPORTING OF OTC CONTRACTS: MONTHLY ANALYSIS

(OCTOBER 2012)

[An analysis of all weekly reports (reporting period 1st – 28th October 2012) received from licensed-traders for the month of October 2012]

Economics Division
Market Monitoring Cell
Central Electricity Regulatory Commission

Prepared on 9th November 2012

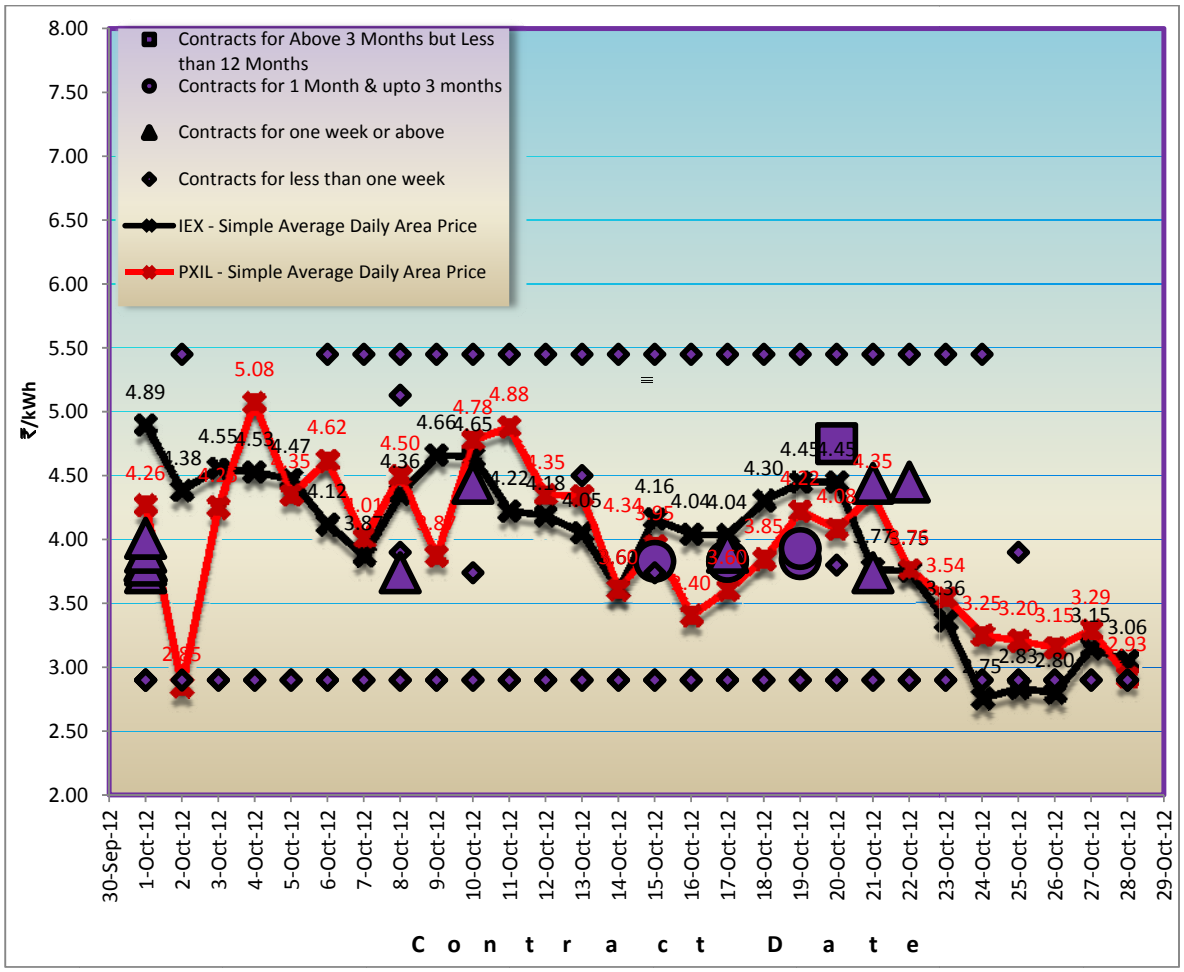
Snapshot for October 2012

- ✓ The reported short-term contract volume for the month of October 2012 (analysis of four weeks) was 2263.47 MUs whereas the same was 3044.42 MUs for the month of September 2012 (analysis of five weeks). There is a 26% decrease in reported contract-volume.
- ✓ 76% of total volume has been contracted at above price of ₹4/kWh as compared to 63% during September 2012.
- ✓ Total number of contracts (including Swap & Banking) in October 2012 (analysis of four weeks) was 123 by 4 traders whereas in September (analysis of five weeks) was 76 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 both the OTC and Power Exchange markets for the period of 1st - 28th October 2012. As is seen from the scatter diagram, most of the contracts were concentrated in the 3rd week of the reported period and the overall price was in a range of ₹2.90/kWh - ₹5.45/kWh. There were 90 contracts for less than a week and 18 contracts for a month & above period of power delivery.

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 on 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 October	2.90	5.45	4.00	138.01
8th -14th October	2.90	5.45	4.48	69.69
15th -21st October	2.90	5.45	4.52	1827.16
22nd -28th October	2.90	5.45	4.31	29.52
Total				**2064.38**

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

(Includes Term Ahead Contracts at Power Exchanges)

Contract Date (2012)	1st October	2nd October	3rd October	4th October	5th October	6th October	7th October	8th October	9th October	10th October	11th October	12th October	13th October	14th October
IEX*(₹/kWh)	4.89	4.38	4.55	4.53	4.47	4.12	3.87	4.36	4.66	4.65	4.22	4.18	4.05	3.61
PXIL*(₹/kWh)	4.26	2.85	4.25	5.08	4.35	4.62	4.01	4.50	3.87	4.78	4.88	4.35	4.34	3.60
OTC Contracts** (₹/kWh)	4.00 (1st -7th October)							4.48 (8th -14th October)						

Contract Date (2012)	15th October	16th October	17th October	18th October	19th October	20th October	21st October	22nd October	23rd October	24th October	25th October	26th October	27th October	28th October
IEX*(₹/kWh)	4.16	4.04	4.04	4.30	4.45	4.45	3.77	3.75	3.36	2.75	2.83	2.80	3.15	3.06
PXIL*(₹/kWh)	3.95	3.40	3.60	3.85	4.22	4.08	4.35	3.76	3.54	3.25	3.20	3.15	3.29	2.93
OTC Contracts** (₹/kWh)	4.52 (15th - 21st October)							4.31 (22nd - 28th October)						

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

**: Simple Average Area Prices for the Day for all the Bid Areas*

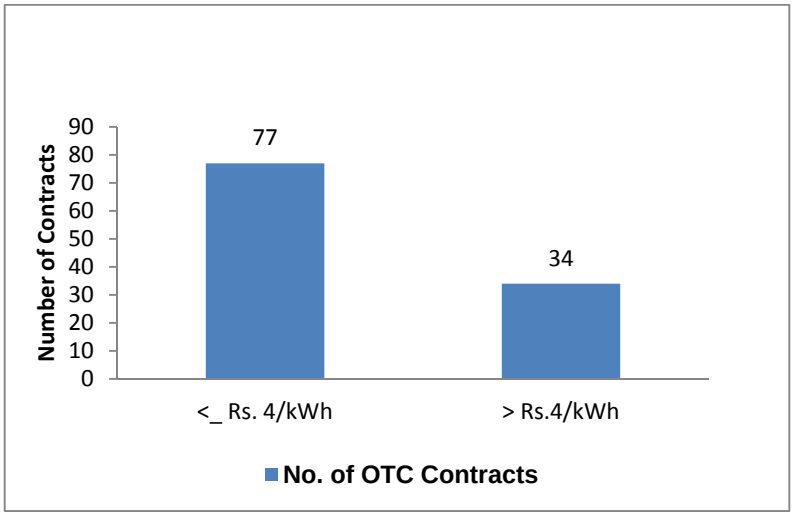
***: Weekly Weighted Average Prices for OTC- Contracts*

Observations

1. It is observed that IEX and PXIL prices were generally below the average OTC contract prices during the reported period. The minimum 24-hour average price in the exchanges during reported period was ₹2.75/kWh (IEX, 24th October) while that in the OTC market was ₹2.90/kWh (1st – 28th October). Maximum 24-hour average 24-hour average price in Day-Ahead market at the exchange reached ₹5.08/kWh (PXIL, 2nd October) and in OTC Market it was ₹5.45/kWh (2nd - 28th October) which was a 'Round-the-Clock' power contract. The OTC prices were lower than the power exchange prices in the 1st week and started increasing from 2nd week of 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.

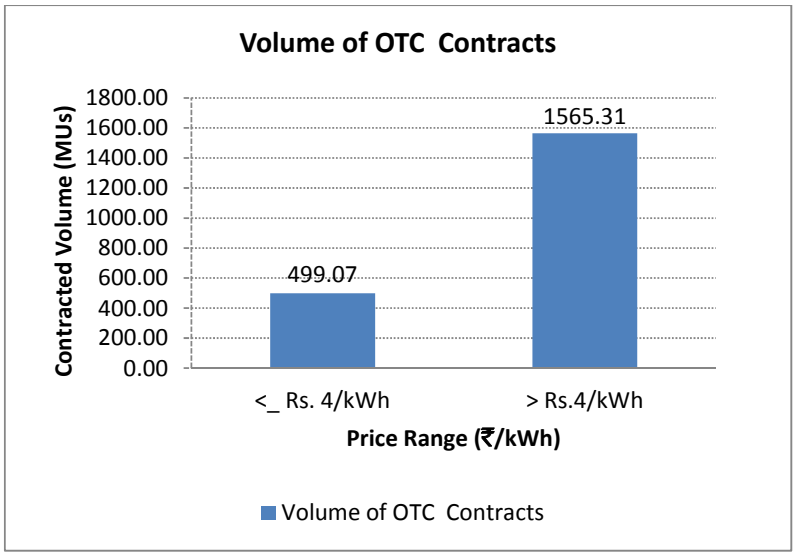
2. As far as the number of contracts is concerned, 34 out of totals 111♣ contracts were entered at above ₹4/kWh. There were a total 123 contracts including swap & banking during the reported period. However, the cumulative volume traded above ₹4/kWh was 1565.31♣ MUs which is 76% of total OTC contracts for the reported period 1st - 28th October 2012.

Chart 2: Frequency Distribution of Number of OTC Contracts



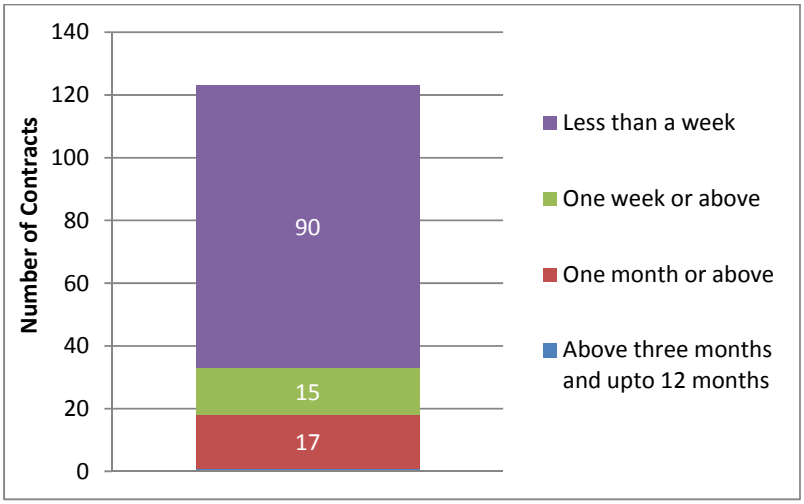
♣ *Excluding swap /banking contracts since they do not have any sale price.*

Chart 3: Frequency Distribution of Number of OTC Contracts



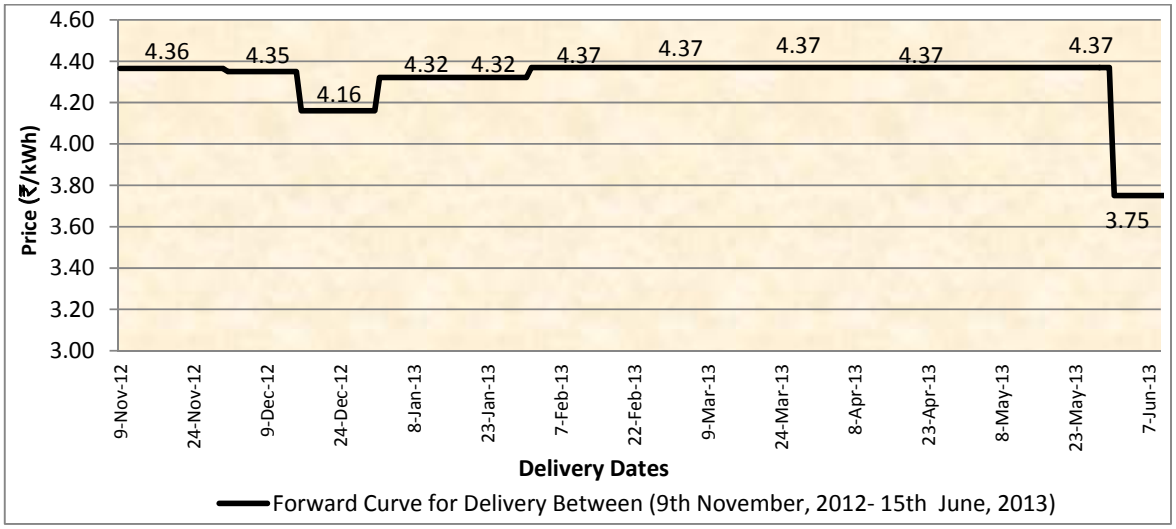
Following chart shows the number of contracts reported during October 2012, categorized according to the period of power supply.

Chart 4: Number of Contracts Reported in October 2012



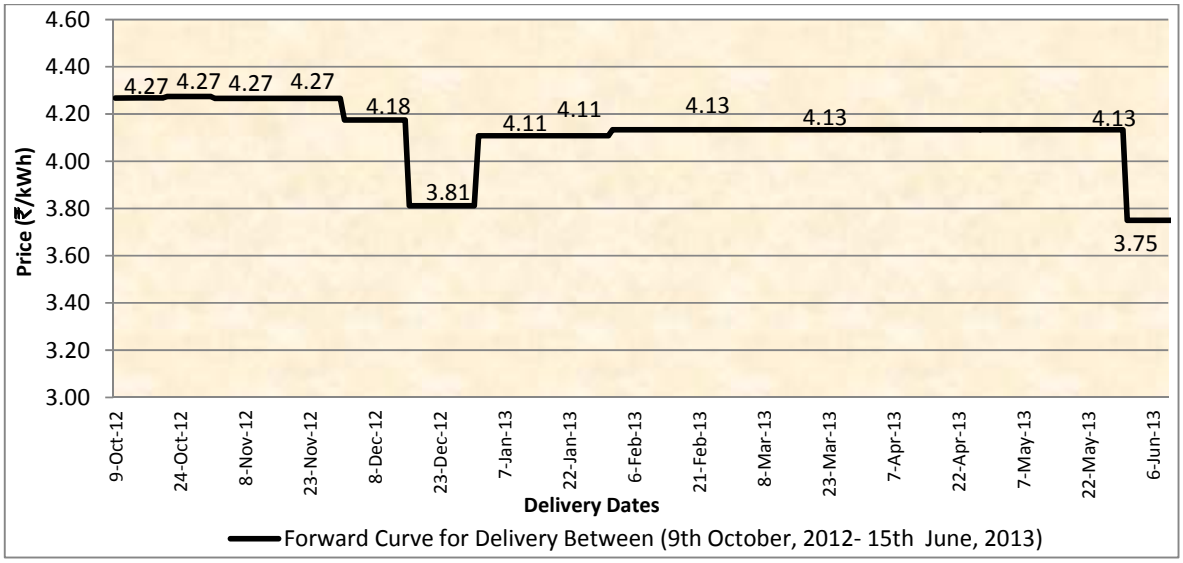
II. Forward Curve of Power Prices

Chart 5: Forward Curve for the period October 2012 - June 2013 as on 9th November 2012



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 from 9th November 2012 - 15th June 2013, i.e. upto seven months ahead period of power supply. This forward curve is as on 9th November 2012 but based on 111 contract prices reported by trader's upto 28th October 2012.

Chart 5.1: Forward Curve for the period October 2012 - June 2013 as on 9th October 2012



Observations

1. The Forward Curve for the next seven months period i.e. November 2012 - June 2013 as on 9th October 2012 is generally flat in the range of ₹3.75 - ₹4.37/kWh. Thereafter in June 2013 the curve drops down since certain higher priced contracts are getting completed in May 2013.

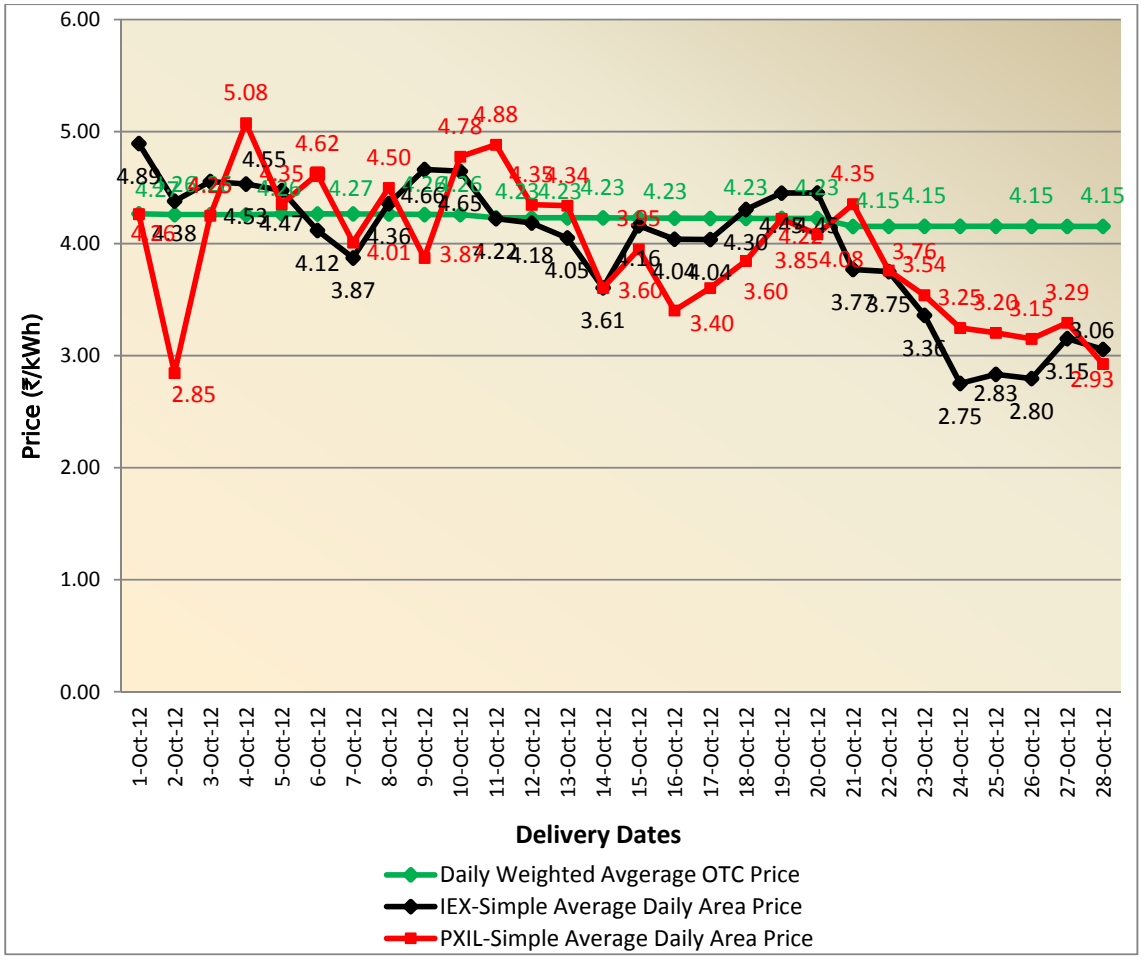
2. The Forward Curve as on 9th November 2012 has been formulated for a period of seven months based on reported contracts (for 9th November 2012 - 15th June 2013 period of power delivery). The numbers of contracts reported for the initial months (November and December 2012) were higher (24 and 9 contracts respectively) than those of later months i.e. February 2013 to June 2013 (4 and 1 contracts respectively). It is in alignment with the general trend that liquidity is higher for nearer months compared to farther months.

3. The shape of forward curves (Chart 4 & Chart 4.1) in October and November are similar which means that there is no change in perception of participants about prices over this period. However the forward curve for November is slightly up in nearer months then the October month.

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 October 2012



Observations

1. The prices in power exchanges have fluctuated over a wide range (₹ 2.75 to ₹5.08/ kWh) over the month. However the OTC - contracts delivery prices have been more or less stable. The power exchanges prices were higher than the OTC's prices during the initial weeks while they were lower in later weeks of the reported period. It may be noted that Power Exchange is a day ahead market with standardized contracts with no transmission corridor assurance 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.

Annexure-I

Table 5: List of Trading Licensees who have undertaken Contracts in the period 1st - 28th October 2012*

Sr.No.	Name of Licensee	1st -7th October	8th -14th October	15th -21st October	22nd -28th October
1	PTC India Ltd.	Y(17)	Y(22)	Y(21)	Y(17)
2	NTPC Vidyut Vyapar Nigam Ltd.	Y(9)	Y(6)	Y(20)	Y(7)
3	Adani Enterprises Ltd.	NIL	NIL	Y(2)	NIL
4	Reliance Energy Trading (P) Ltd	Y(1)	NIL	Y(1)	NIL
Total No. of Contracts		27	28	44	24
Total for month for all traders		123			

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 average OTC price vis-à-vis power exchanges prices for the last month's power deliveries. Hence this compares the spot delivered prices with OTC deliveries (OTC contracts may have been executed earlier but delivered on

these same days). The process of calculating the data points is same as in the forwards curve.

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 hour) 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:

Hourly Average (Hn) = (A1+ A2+ E1+E2+N1+N2+N3+W1+W2+W3+S1+S2) /12 for Hour 1 to 24

Simple Average Area Price = (H1 + H2 +... +H23+ H24) / 24 for the full day.