

WEEKLY REPORTING OF OTC CONTRACTS: MONTHLY ANALYSIS (SEPTEMBER 2012)

[An analysis of all weekly reports (reporting period 27th August – 30th September 2012) received from licensed-traders for the month of September 2012]



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Central Electricity Regulatory Commission

Prepared on 9th October 2012

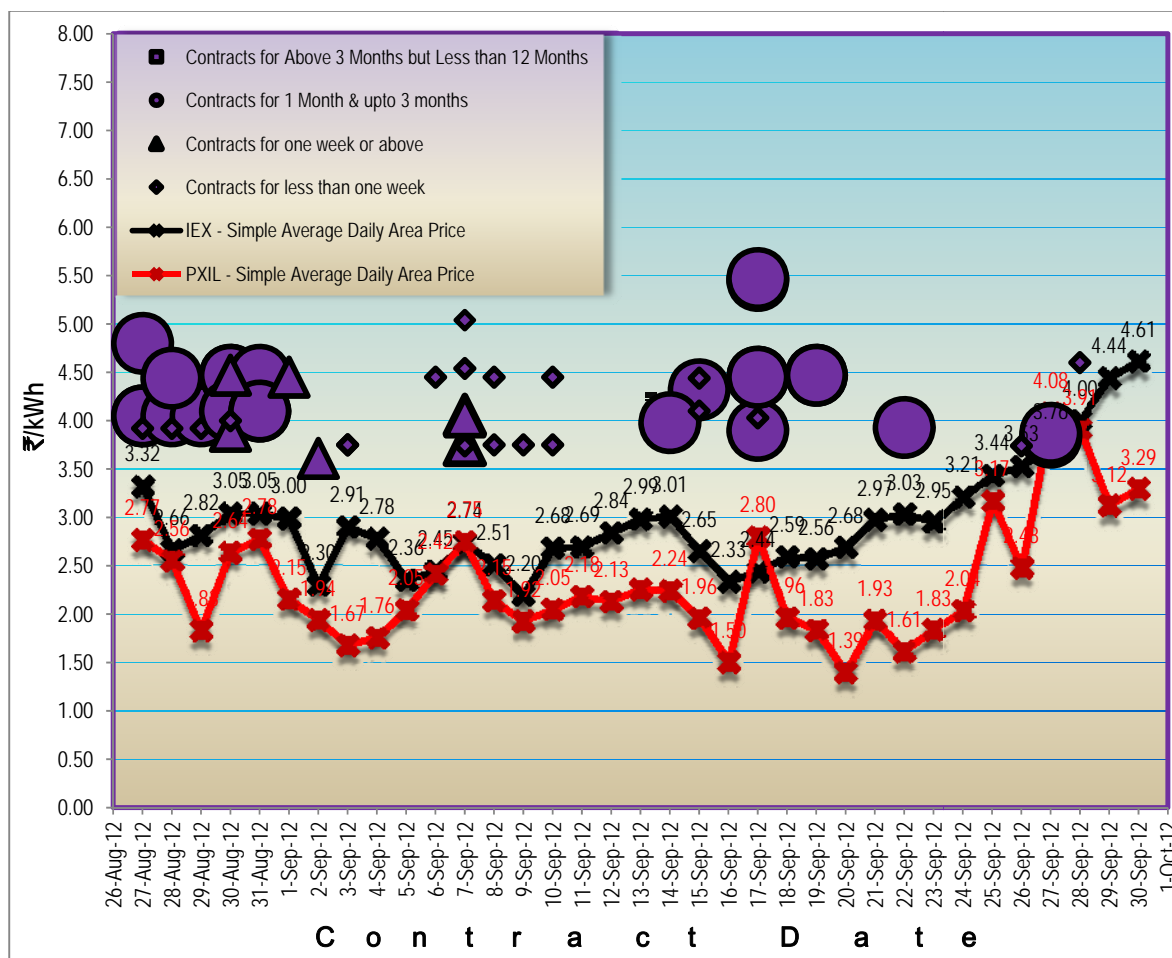
Snapshot for September 2012

- ✓ The reported short-term contract volume for the month of September 2012 (analysis of five weeks) was 3044.42 MUs whereas the same was 1932.83 MUs for the month of August 2012 (analysis of four weeks). There is a 58% increase in reported contract-volume.
- ✓ 63% of total volume has been contracted at above price of ₹4/kWh as compared to 77% during August 2012.
- ✓ Total number of contracts (including Swap & Banking) in September (analysis of five weeks) was 76 by 7 traders whereas in August (analysis of four weeks) was 115 by 6 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 27th August – 30th September 2012. As is seen from the scatter diagram, most of the contracts were concentrated in the 1st & 3rd week of the reported period and the overall price was in a range of ₹3.61/kWh - ₹5.47/kWh. There were 35 contracts for less than a week and 28 contracts for a month & above period of power delivery. However there was no contract for above three months 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 and no transmission corridor assurance while the OTC Contracts are weekly/monthly contracts with flexibility of customization and corridor assurance. 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		
27 th Aug. - 2 nd Sept.	3.61	4.80	4.24	1378.88
3 rd - 9 th Sept.	3.72	5.04	4.35	212.37
10 th - 16 th Sept.	3.75	4.45	4.20	240.18
17 th - 23 rd Sept.	3.90	5.47	4.58	343.73
24 th - 30 th Sept.	3.74	4.60	3.85	708.46
Total				2883.62

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

(Includes Term Ahead Contracts at Power Exchanges)

Contract Date (2012)	27th August	28th August	29th August	30th August	31st August	1st September	2nd September	3rd September	4th September	5th September	6th September	7th September	8th September	9th September	10th September	11th September	12th September	13th September	14th September	15th September	16th September
IEX* (₹/kWh)	3.32	2.66	2.82	3.05	3.05	3.00	2.30	2.91	2.78	2.36	2.45	2.74	2.51	2.20	2.68	2.69	2.84	2.99	3.01	2.65	2.33
PXIL* (₹/kWh)	2.77	2.56	1.83	2.64	2.78	2.15	1.94	1.67	1.76	2.05	2.42	2.75	2.15	1.92	2.05	2.18	2.13	2.26	2.24	1.96	1.50
OTC Contracts** (₹/kWh)	4.24 (27 th Aug. - 2 nd Sept.)						4.35 (3 rd - 9 th Sept.)						4.20 (10 th - 16 th Sept.)								

Contract Date (2012)	17th September	18th September	19th September	20th September	21st September	22nd September	23rd September	24th September	25th September	26th September	27th September	28th September	29th September	30th September
IEX* (₹/kWh)	2.44	2.59	2.56	2.68	2.97	3.03	2.95	3.21	3.44	3.53	3.76	4.00	4.44	4.61
PXIL* (₹/kWh)	2.80	1.96	1.83	1.39	1.93	1.61	1.83	2.04	3.17	2.48	4.08	3.91	3.12	3.29
OTC Contracts** (₹/kWh)	4.58 (17 th - 23 rd Sept.)						3.85 (24 th - 30 th Sept.)							

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

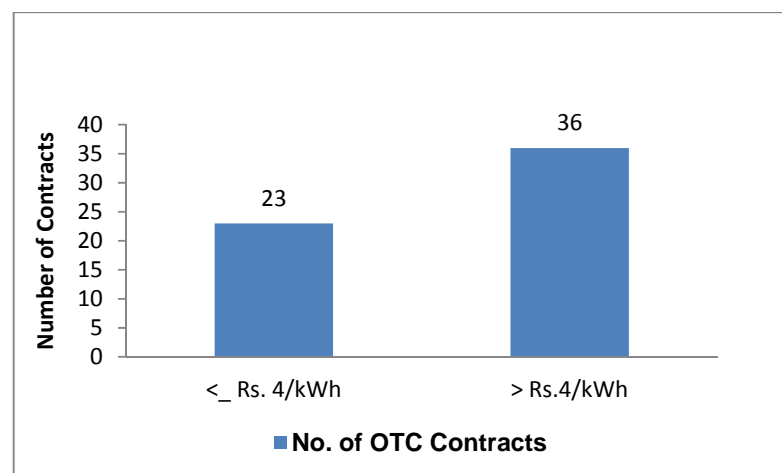
*: Simple Average Area Prices for the Day for all the Bid Areas

**: Weekly Weighted Average Prices for OTC- Contracts

Observations

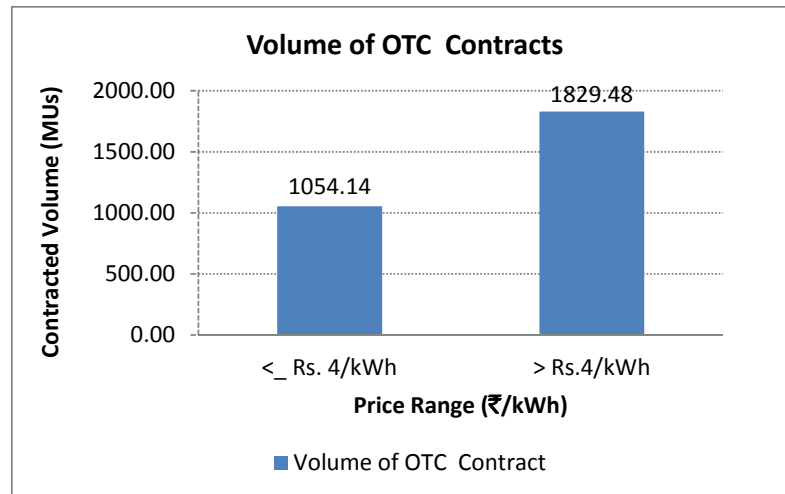
1. It is observed that IEX and PXIL prices were generally below the average OTC contract prices during the reported period. The minimum price in the exchanges during reported period was ₹1.39/kWh (PXIL, 20th September) while that in the OTC market was ₹3.61/kWh (2nd September). Maximum price in Day-Ahead market at the exchange reached ₹4.61/kWh (IEX, 30th September) and in OTC Market it was ₹5.47/kWh (17th September) which was a 'Round-the-Clock' power contract. It may be noted that Power Exchange is a day ahead market with standardized contracts and no transmission corridor assurance while the OTC Contracts are weekly/monthly contracts with flexibility of customization and transmission corridor assurance. 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, 36 out of totals 59^{*} contracts were entered at above ₹4/kWh. There were a total 76 contracts including swap & banking during the reported period. However, the cumulative volume traded above ₹4/kWh was 1829.48^{*} MUs which is 63% of total OTC contracts for the reported period 27th August – 30th September 2012.

Chart 2: Frequency Distribution of Number of OTC Contracts



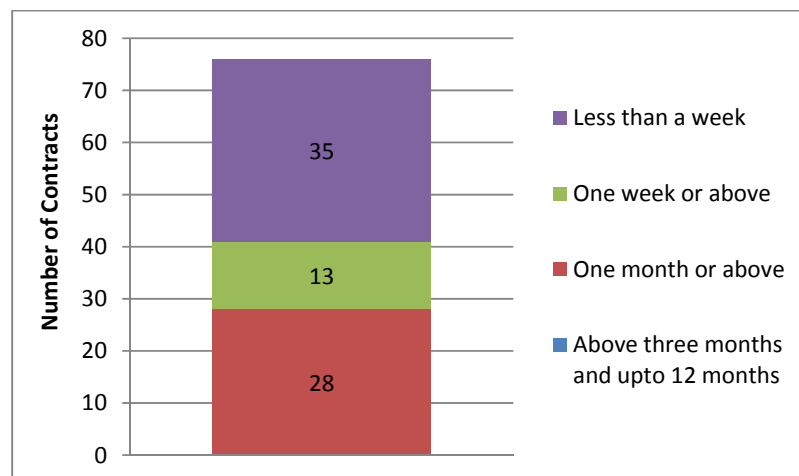
^{*} Excluding swap /banking contracts since they do not have any sale price.

Chart 3: Cumulative Volume Traded below and above ₹4/kWh 27th August – 30th September 2012



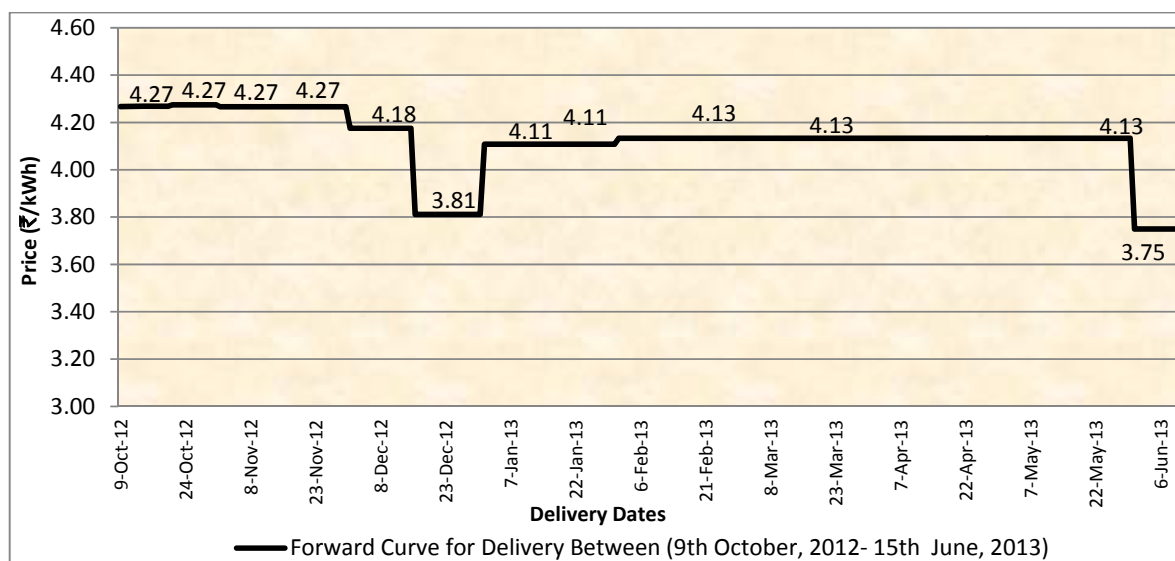
Following chart shows the number of contracts reported during September 2012, categorized according to the period of power supply.

Chart 4: Number of Contracts Reported in September 2012



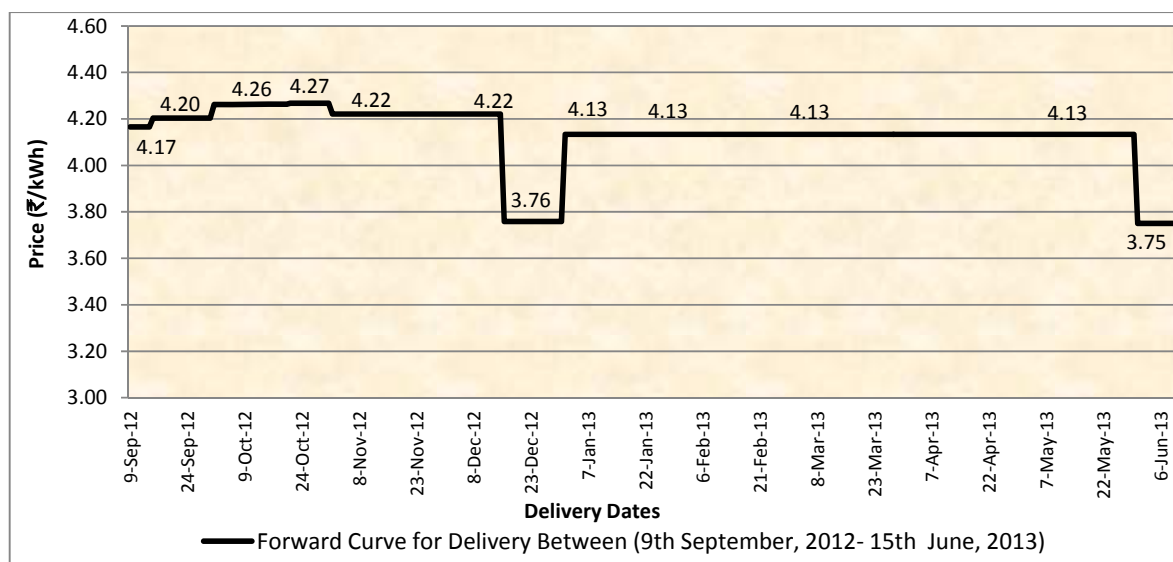
II. Forward Curve of Power Prices

Chart 5: Forward Curve for the period October 2012 - June 2013
as on 9th October 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 October 2012 - 15th June 2013, i.e. eight months ahead period of power supply. This forward curve is as on 9th October 2012 but based on 59 contract prices reported by trader's upto 30th September 2012.

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



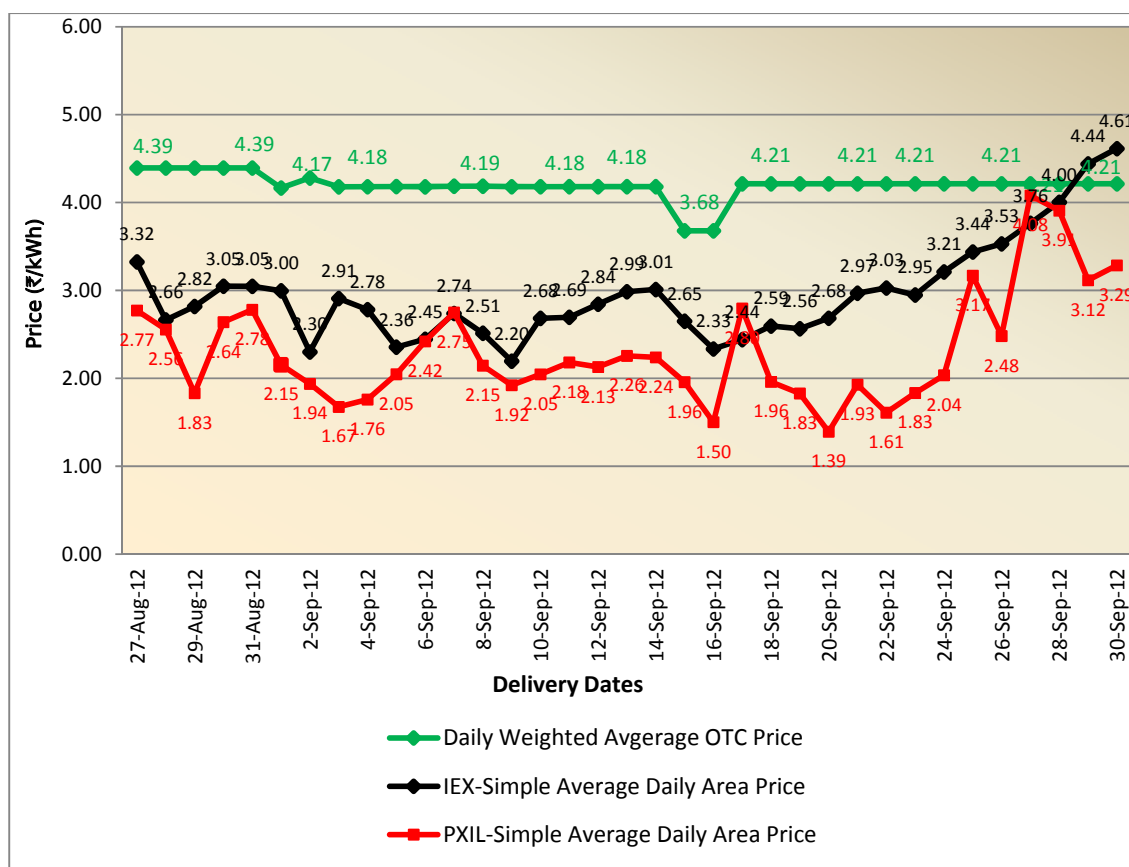
Observations

1. The Forward Curve for the next eight months period i.e. October 2012 - June 2013 as on 9th October 2012 is generally flat in the range of ₹3.75 - ₹4.27/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 October 2012 has been formulated for a period of eight months based on reported contracts (for 9th October 2012 - 15th June 2013 period of power delivery). The numbers of contracts reported for the initial months (October and November 2012) were higher (18 and 16 contracts respectively) than those of later months i.e. February 2013 to June 2013 (3 and 1 contracts respectively). It is in alignment with the general trend that liquidity is higher for nearer months compared to farther months.

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). 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 September 2012



Observations

1. The prices in power exchanges have fluctuated over a wide range (₹ 1.39 to ₹4.61/kWh) over the month. However the OTC - contracts delivery prices have fluctuated over a narrower range of ₹3.68 to ₹4.39/kWh and have been generally higher than power exchange prices during the month. 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 assurance. 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 27th August – 30th September 2012***

Sr.No.	Name of Licensee	27 th Aug.- 2 nd Sept.	3 rd - 9 th Sept.	10 th - 16 th Sept.	17 th - 23 rd Sept.	24 th - 30 th Sept.
1	PTC India Ltd.	Y(4)	Y(5)	Y(3)	Y(5)	Y(1)
2	NTPC Vidyut Vyapar Nigam Ltd.	Y(18)	Y(3)	Y(8)	Y(9)	NIL
3	GMR Energy Trading Ltd.	NIL	Y(6)	NIL	NIL	NIL
4	Adani Enterprises Ltd	Y(1)	Y(1)	NIL	NIL	Y(3)
5	National Energy Trading & Services Ltd	Y(1)	Y(2)	NIL	NIL	NIL
6	JSW Power Trading Company Ltd	Y(4)	NIL	Y(1)	NIL	NIL
7	Shree Cement Ltd.	Y(1)	NIL	NIL	NIL	NIL
Total No. of Contracts		29	17	12	14	4
Total for month for all traders		76				


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

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