WEEKLY REPORTING OF OTC CONTRACTS: MONTHLY ANALYSIS

(DECEMBER 2012)

[An analysis of all weekly reports (reporting period 3rd – 30th December 2012) received from licensed-traders for the month of December 2012]

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Prepared on 9th January 2013

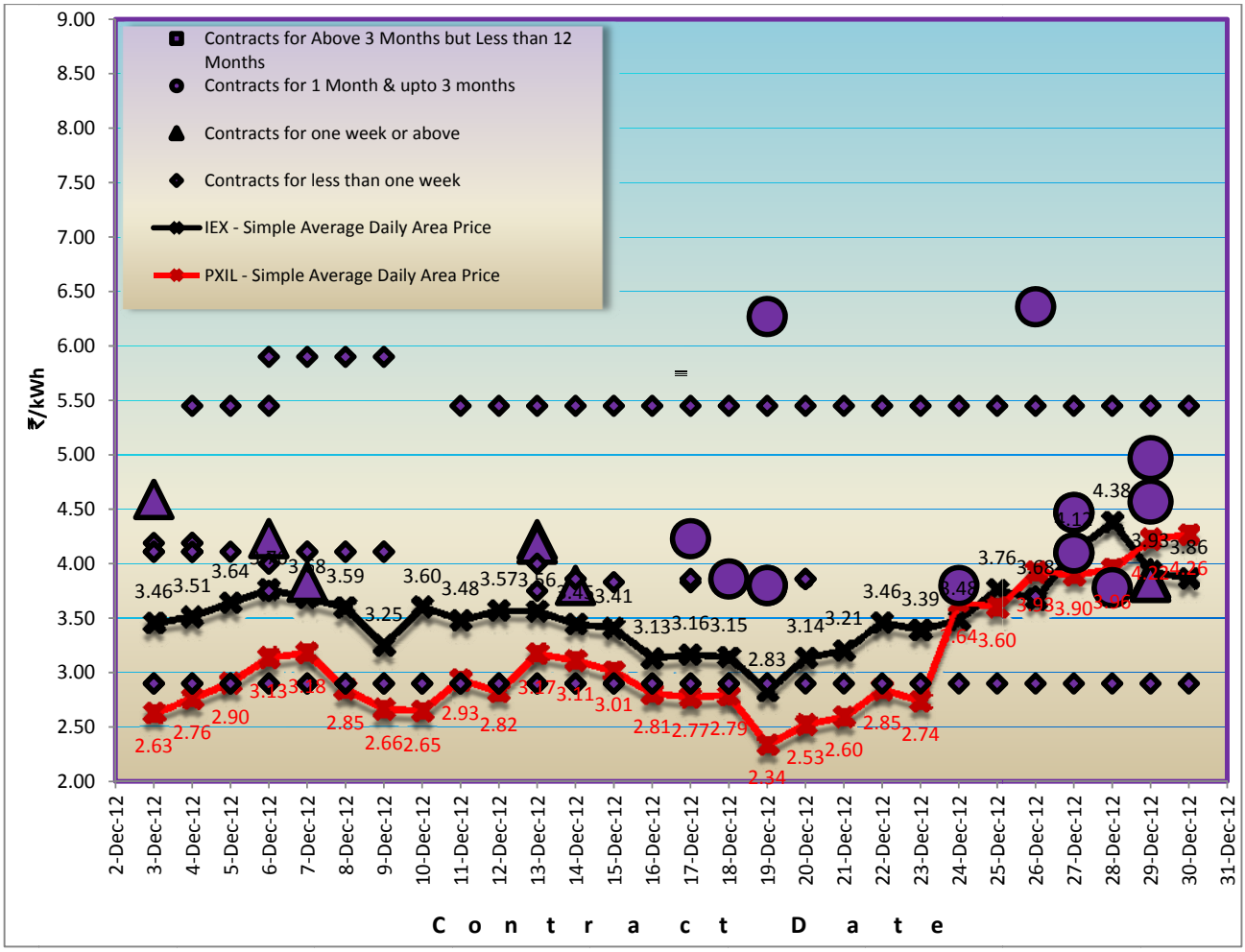
Snapshot for December 2012

- ✓ The reported short-term contract volume for the month of December 2012 (analysis of four weeks) was 2142.96MUs whereas the same was 3699.79 MUs for the month of November 2012 (analysis of five weeks). There is a 42% decrease in reported contract-volume.
- ✓ 59% of total volume has been contracted at above price of ₹4/kWh as compared to 50% during November 2012.
- ✓ Total number of contracts (including Swap & Banking) in December 2012 (analysis of four weeks) was 150 by 8 traders whereas in November 2012 (analysis of five weeks) was 154 by 6.

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 3rd - 30th December 2012. As seen in scatter diagram, most of the contracts were executed in the 1st and 4th week of the reported period and the overall price was in the range of ₹2.90/kWh - ₹6.36/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 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		
3rd - 9th Dec 12	2.90	5.90	4.08	130.23
10th - 16th Dec 12	2.90	6.27	4.07	248.86
17th - 23rd Dec 12	2.90	6.27	4.41	277.33
24th - 30th Dec 12	2.90	6.36	4.68	1195.35
Total				**1851.77**

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

(Includes Term Ahead Contracts at Power Exchanges)

Contract Date (2012)	3rd December	4th December	5th December	6th December	7th December	8th December	9th December	10th December	11th December	12th December	13th December	14th December	15th December	16th December
IEX*(₹/kWh)	3.46	3.51	3.64	3.76	3.68	3.59	3.25	3.60	3.48	3.57	3.56	3.45	3.41	3.13
PXIL*(₹/kWh)	2.63	2.76	2.90	3.13	3.18	2.85	2.66	2.65	2.93	2.82	3.17	3.11	3.01	2.81
OTC Contracts** (₹/kWh)	4.08 (3rd - 9th December)							4.07 (10th - 16th December)						

Contract Date (2012)	17th December	18th December	19th December	20th December	21st December	22nd December	23rd December	24th December	25th December	26th December	27th December	28th December	29th December	30th December
IEX*(₹/kWh)	3.16	3.15	2.83	3.14	3.21	3.46	3.39	3.48	3.76	3.68	4.12	4.38	3.93	3.86
PXIL*(₹/kWh)	2.77	2.79	2.34	2.53	2.60	2.85	2.74	3.64	3.60	3.93	3.90	3.96	4.22	4.26
OTC Contracts** (₹/kWh)	4.41 (17th - 23rd December)							4.68 (24th - 30th December)						

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

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

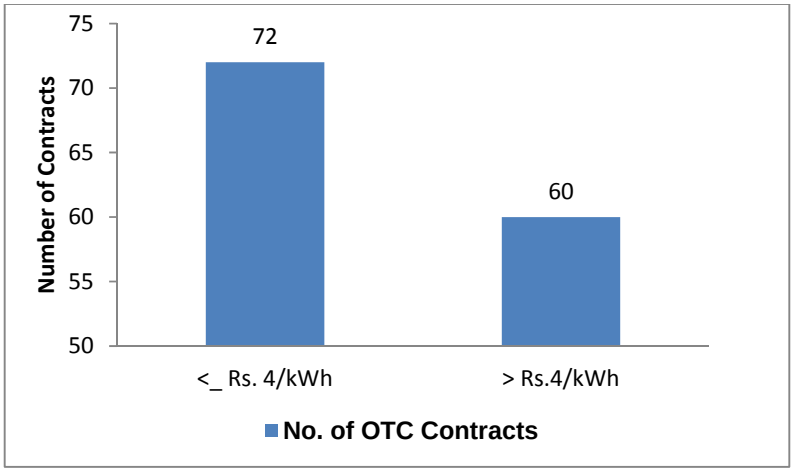
***: Weekly Weighted Average Prices for OTC- Contracts*

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 ₹2.34/kWh (PXIL, 19th December) while that in the OTC market was ₹2.90/kWh (3rd - 30th December). Maximum 24-hour average price in Day-Ahead market at the exchange reached ₹4.38/kWh (IEX, 28th December) and in OTC Market it was ₹6.36/kWh (26th December) which was a 'Round-the-clock' power contract. 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.

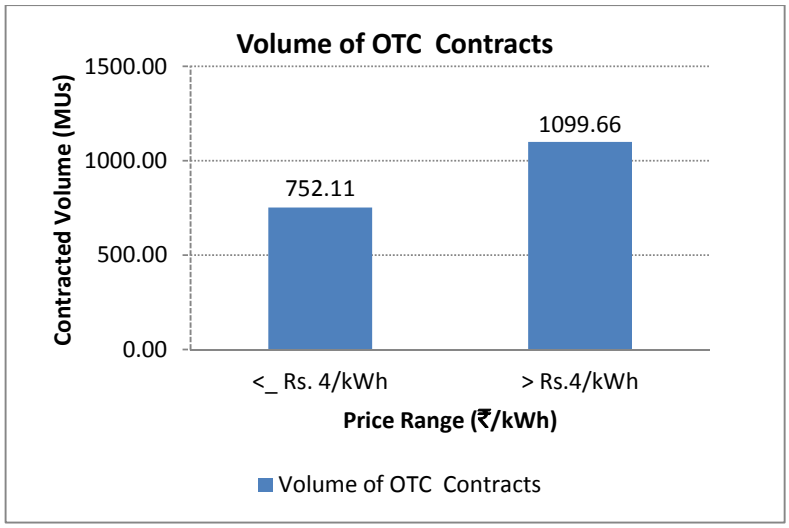
2. As far as the number of contracts is concerned, 60 out of totals 132♣ contracts were entered at above ₹4/kWh. There were a total 150 contracts including swap & banking during the reported period. However, the cumulative volume traded above ₹4/kWh was 1099.66♣ MUs which is 59% of total OTC contracts for the reported period 3rd - 30th December 2012.

Chart 2: Frequency Distribution of Number of OTC Contracts



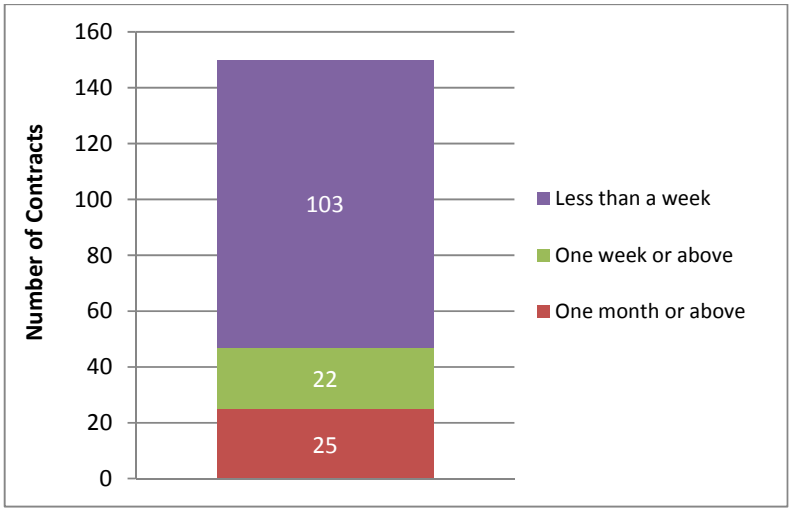
♣ *Excluding swap /banking contracts since they do not have any sale price.*

Chart 3: Cumulative Volume Traded below and above ₹4/kWh 3rd - 30th December 2012



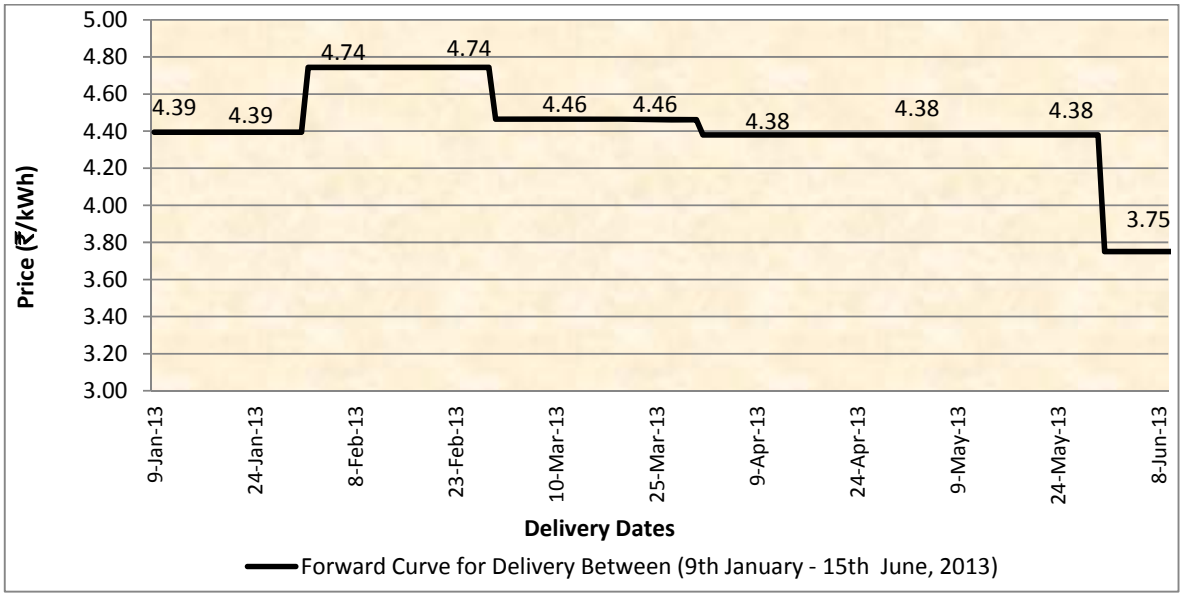
Following chart shows the number of contracts reported during December 2012, categorized according to the period of power supply.

Chart 4: Number of Contracts Reported in December 2012



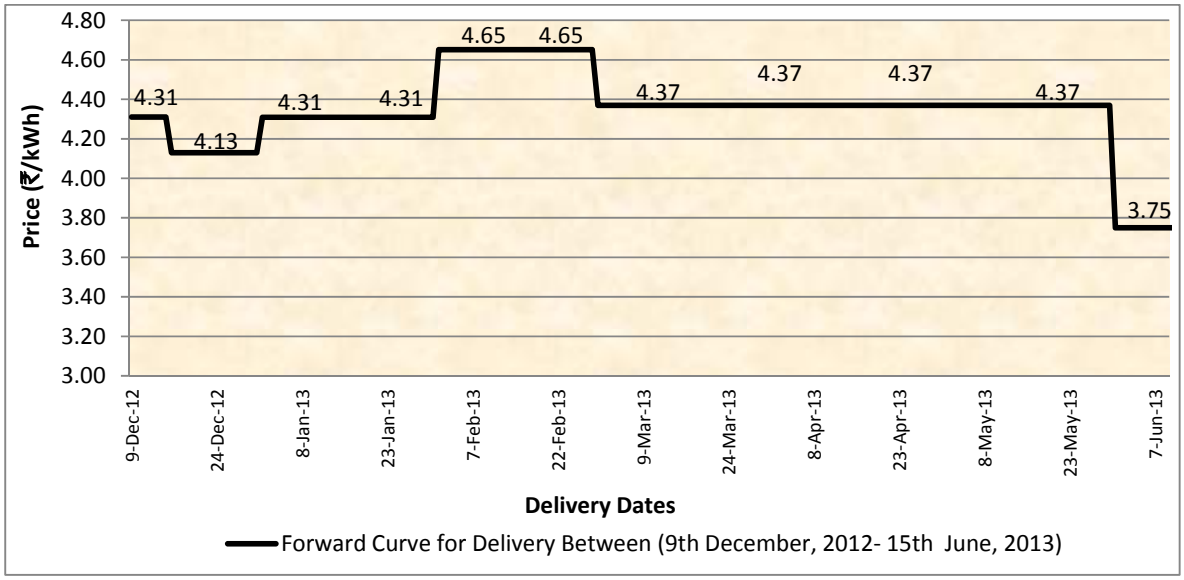
II. Forward Curve of Power Prices

Chart 5: Forward Curve for the period January - June 2013 as on 9th January 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 from 9th January - 15th June 2013, i.e. upto five months ahead period of power supply. This forward curve is as on 9th January 2013 but based on 132 contract prices reported by trader's upto 30th December 2012.

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



Observations

1. The Forward Curve for the next five months period i.e. January - June 2013 as on 9th January 2012 has fluctuated in the range of ₹3.75 - ₹4.74/kWh. Thereafter in June 2013 the curve drops down since certain higher priced contracts are expiring in May 2013.

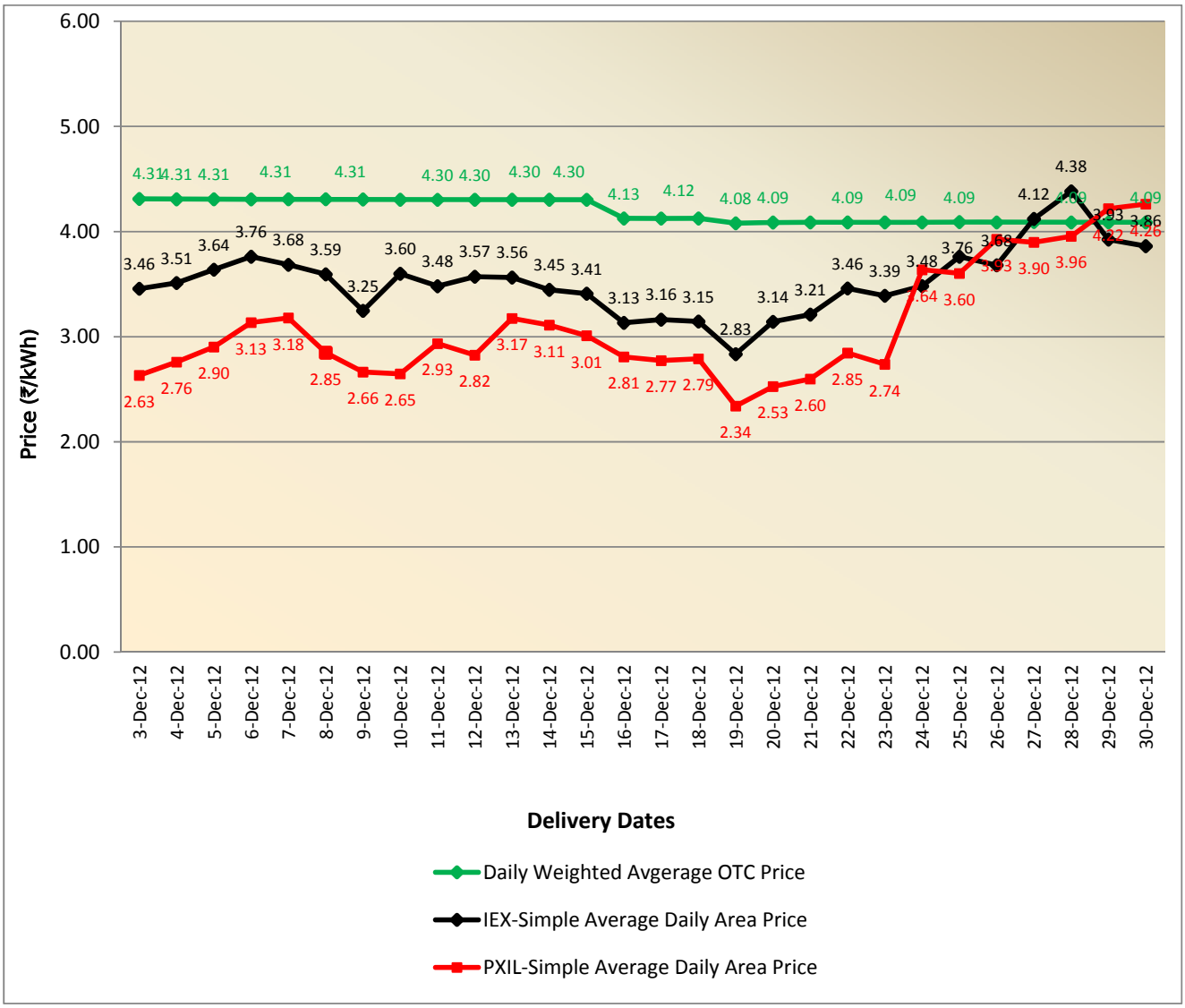
2. The Forward Curve as on 9th January 2013 has been formulated for a period of five months based on reported contracts (for 9th January 2012 - 15th June 2013 period of power delivery). The numbers of contracts reported for the initial months (January and February 2013) were higher (25 and 13 contracts respectively) than those of later months i.e. April to June 2013 (5 and 1 contracts respectively). It is in alignment with the general trend that liquidity is higher for nearer months compared to farther months.

3. A comparison of forward curves (Chart 5 & Chart 5.1) gives us a picture of expected delivery price for December 2012 - June 2013 as on 9th December (Chart 5.1) and as on 9th January (Chart 5). It is possible that the prices for the same delivery period are different during different periods of time when contracts were being signed. For instance prices for expected delivery for February 2013 have increased from ₹4.65/kWh (in December 2012) to ₹4.74/kWh (in January 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 6: Comparison OTC Deliveries and Power Exchange Spot Delivery Price for December 2012



Observations

1. The prices in power exchanges have fluctuated over a range of ₹2.34 to ₹4.38/ kWh during the month. However the OTC - contracts delivery prices have been more or less stable in the range of ₹4.08 to ₹4.31/ kWh. The power exchanges prices were generally lower than the OTC's prices during 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.

Annexure-I

Table 5: List of Trading Licensees who have undertaken Contracts in the period 3rd – 30th December 2012*

Sr.No.	Name of Licensee	3rd - 9th Dec 12	10th - 16th Dec 12	17th - 23rd Dec 12	24th - 30th Dec 12
1	PTC India Ltd.	Y(47)	Y(20)	Y(17)	Y(14)
2	NTPC Vidyut Vyapar Nigam Ltd.	Y(3)	Y(6)	Y(12)	Y(14)
3	Adani Enterprises Ltd.	Y(2)	Y(2)	Y(2)	Y(2)
4	Reliance Energy Trading (P) Ltd	NIL	Y(2)	NIL	NIL
5	National Energy Trading & Services Ltd	NIL	Y(1)	NIL	NIL
6	JSW Power Trading Company Ltd	NIL	Y(1)	NIL	Y(1)
7	Instinct Infra & Power Ltd.	NIL	NIL	NIL	Y(2)
8	Shree Cement Ltd.	NIL	Y(1)	Y(1)	NIL
Total No. of Contracts		52	33	32	33
Total for month for all traders		150			

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.*

Annexure-II

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 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 *Pi* is the price for different 15 minute time blocks in a day