WEEKLY REPORTING OF OTC CONTRACTS: MONTHLY ANALYSIS

(JANUARY 2013)

[An analysis of all weekly reports (reporting period 31st December 2012 – 27th January 2013) received from licensed-traders for the month of January 2013]

Economics Division
Market Monitoring Cell
Central Electricity Regulatory Commission

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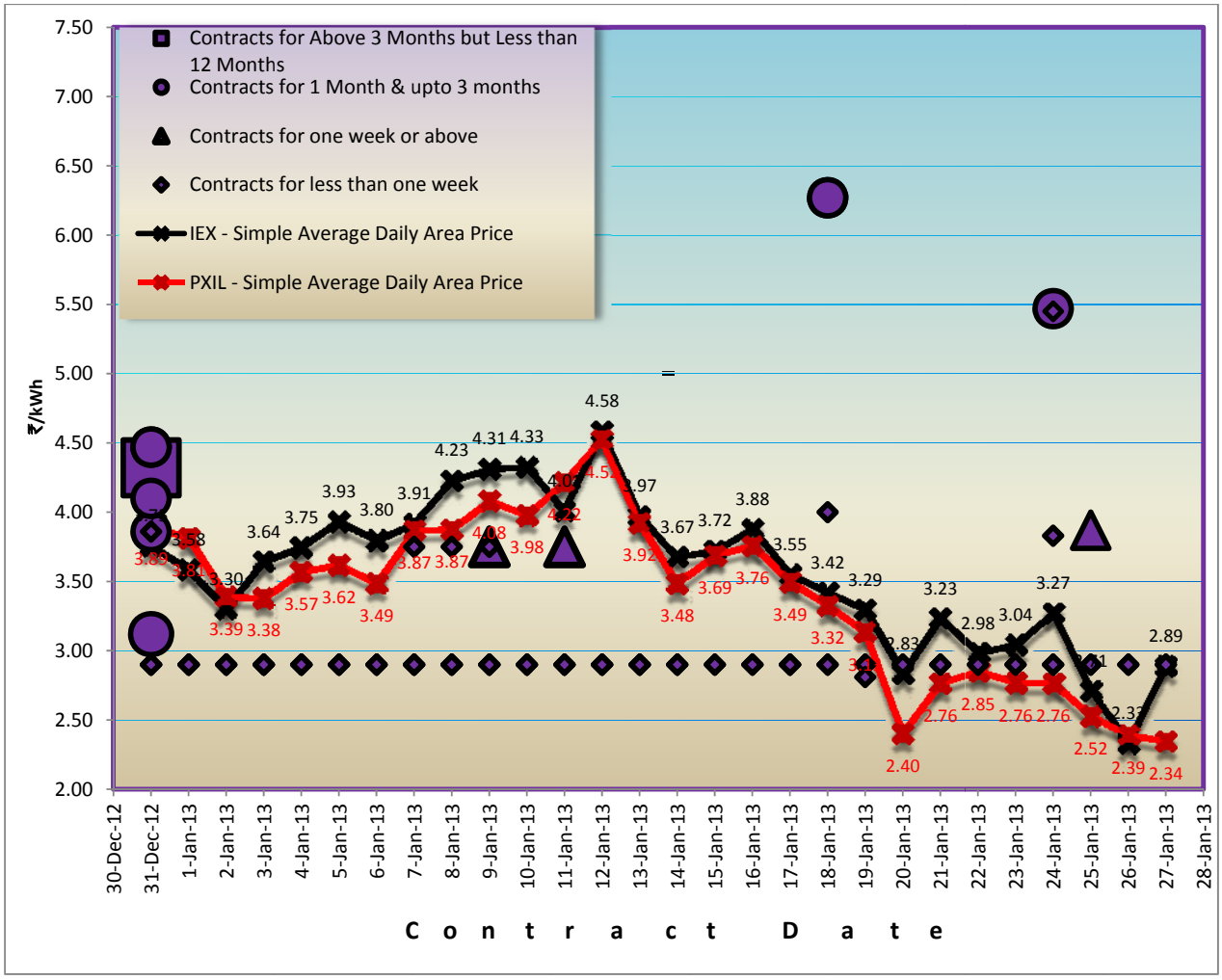
Snapshot for January 2013

- ✓ The reported short-term contract volume for the month of January 2013 (analysis of four weeks) was 1883.75MUs whereas the same was 2142.96MUs for the month of December 2012 (analysis of four weeks). There is a 12% decrease in reported contract-volume.
- ✓ 95% of total volume has been contracted at above price of ₹4/kWh as compared to 59% during December 2012.
- ✓ Total number of contracts (including Swap & Banking) in January 2013 (analysis of four weeks) was 110 by 5 traders whereas in December 2012 (analysis of four weeks) was 150 by 8 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 31st December 2012 – 27th January 2013. 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 ₹2.81/kWh - ₹6.27/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		
31st Dec. 2012-6th Jan 2013	2.90	4.99	4.66	1506.58
7th-13th Jan. 2013	2.90	3.75	3.73	15.98
14th-20th Jan. 2013	2.81	6.27	6.25	89.00
21st-27th Jan. 2013	2.90	5.47	5.34	74.20
Total				**1685.77**

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

(Includes Term Ahead Contracts at Power Exchanges)

Contract Date (2012-13)	31th December 2012	1st January 2013	2nd January 2013	3rd January 2013	4th January 2013	5th January 2013	6th January 2013	7th January 2013	8th January 2013	9th January 2013	10th January 2013	11th January 2013	12th January 2013	13th January 2013
IEX*(₹/kWh)	3.75	3.58	3.30	3.64	3.75	3.93	3.80	3.91	4.23	4.31	4.33	4.01	4.58	3.97
PXIL*(₹/kWh)	3.89	3.81	3.39	3.38	3.57	3.62	3.49	3.87	3.87	4.08	3.98	4.22	4.52	3.92
OTC Contracts** (₹/kWh)	4.66 (31st Dec, 2012 - 6th January 2013)							3.73 (7th Jan - 13th Jan.2013)						

Contract Date (2013)	14th January 2013	15th January 2013	16th January 2013	17th January 2013	18th January 2013	19th January 2013	20th January 2013	21st January 2013	22nd January 2013	23rd January 2013	24th January 2013	25th January 2013	26th January 2013	27th January 2013
IEX*(₹/kWh)	3.67	3.72	3.88	3.55	3.42	3.29	2.83	3.23	2.98	3.04	3.27	2.71	2.33	2.89
PXIL*(₹/kWh)	3.48	3.69	3.76	3.49	3.32	3.13	2.40	2.76	2.85	2.76	2.76	2.52	2.39	2.34
OTC Contracts** (₹/kWh)	6.25 (14th Jan - 20th Jan 2013)							5.34 (21st Jan - 27th Jan 2013)						

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

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

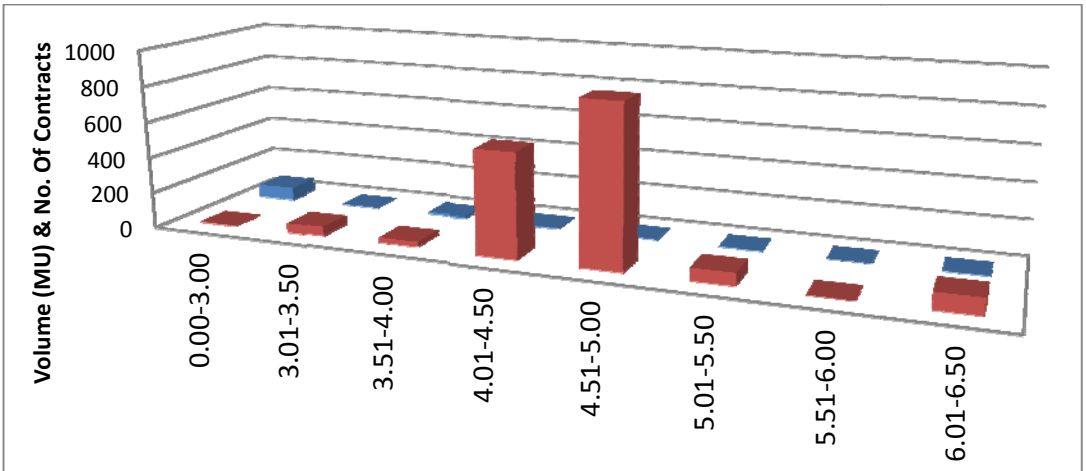
***: Weekly Weighted Average Prices for OTC- Contracts*

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 ₹2.33/kWh (IEX, 26th December) while that in the OTC market was ₹2.81/kWh (19th January 2013). Maximum 24-hour average price in Day-Ahead market at the exchange reached ₹4.58/kWh (IEX, 12th January 2013) and in OTC Market it was ₹6.27/kWh (18th January 2013) which was an 'Other–than-Off-peak' 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, 10 out of totals 95♣ contracts were entered at above ₹4/kWh. However, the cumulative volume traded above ₹4/kWh was 1605.47♣ MUs which is 95% of total OTC contracts for the reported period 31st December 2012 – 27th January 2013. There were a total 110 contracts including swap & banking during the reported period.

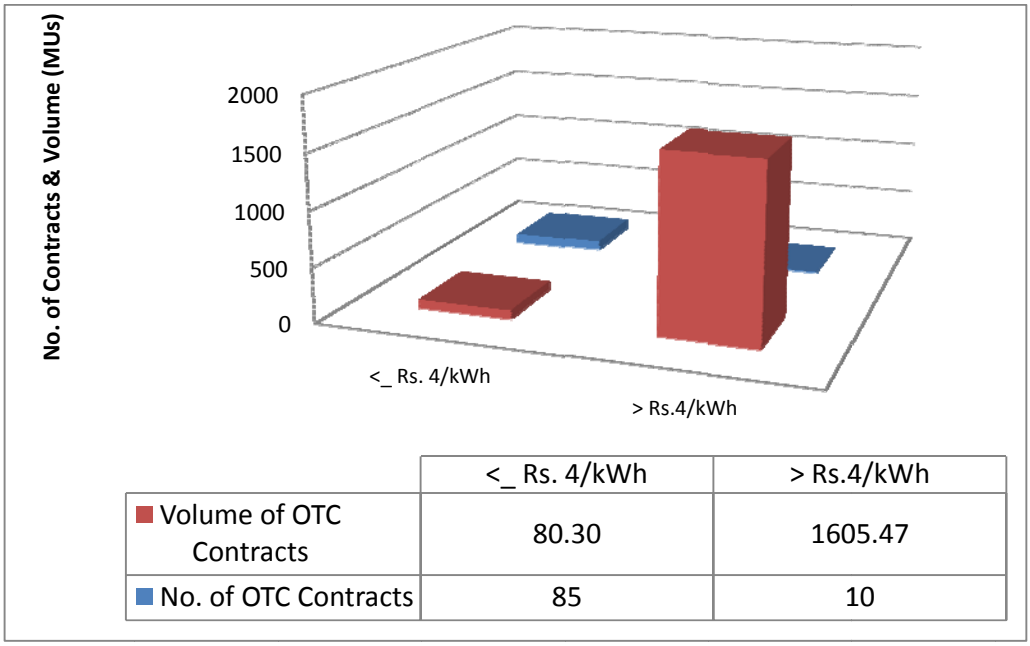
Chart 2: Frequency Distribution of Number of OTC Contracts, Volume and Price Range



	0.00-3.00	3.01-3.50	3.51-4.00	4.01-4.50	4.51-5.00	5.01-5.50	5.51-6.00	6.01-6.50
Volume (MUs)	2.08	51.19	27.03	572.52	876.00	68.45	0.00	88.50
No. of Contracts	73	1	11	5	1	2	0	2

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

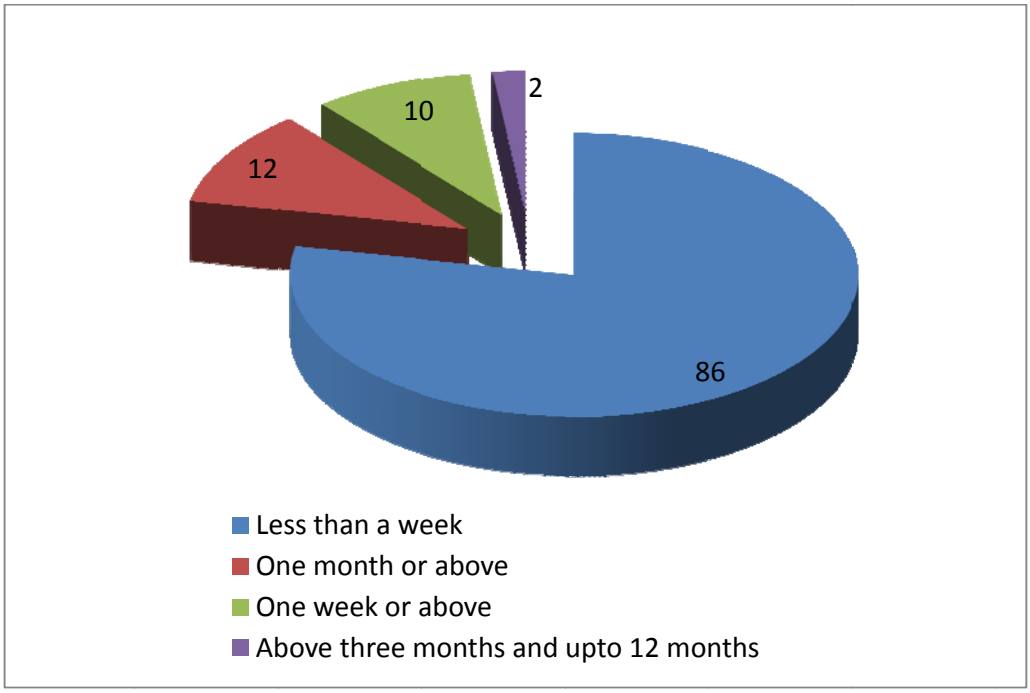
Chart 3: Frequency Distribution of No. of OTC Contracts above ₹4/kWh 31st December 2012 – 27th January 2013



	<_ Rs. 4/kWh	> Rs.4/kWh
Volume of OTC Contracts	80.30	1605.47
No. of OTC Contracts	85	10

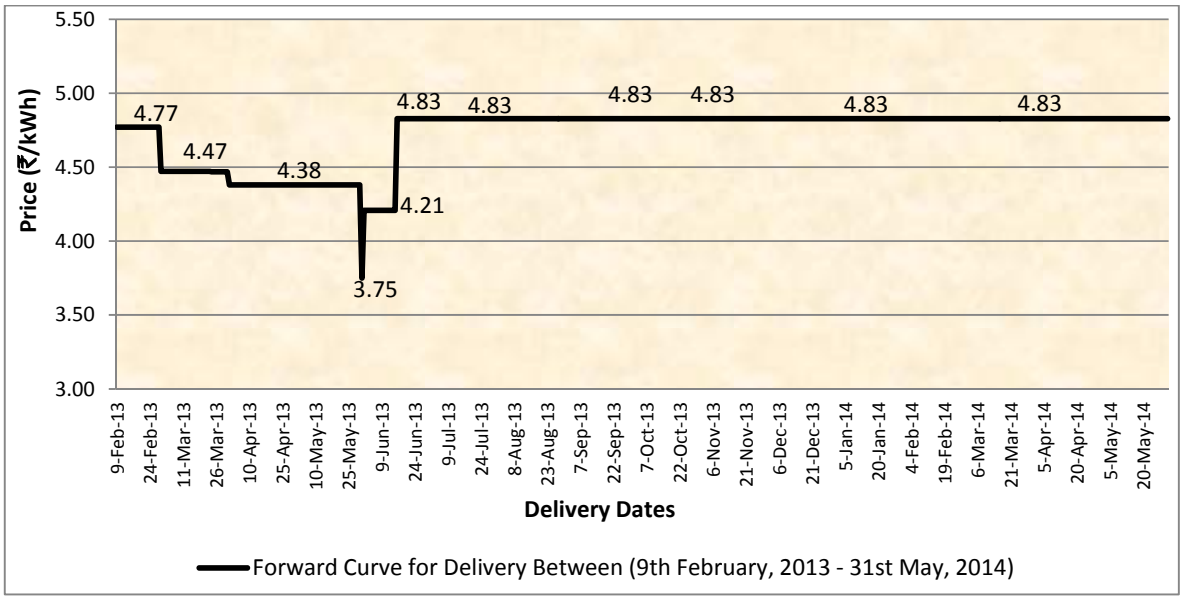
Following chart shows the number of contracts reported during January 2013, categorized according to the period of power supply.

Chart 4: Number of Contracts Reported in January 2013



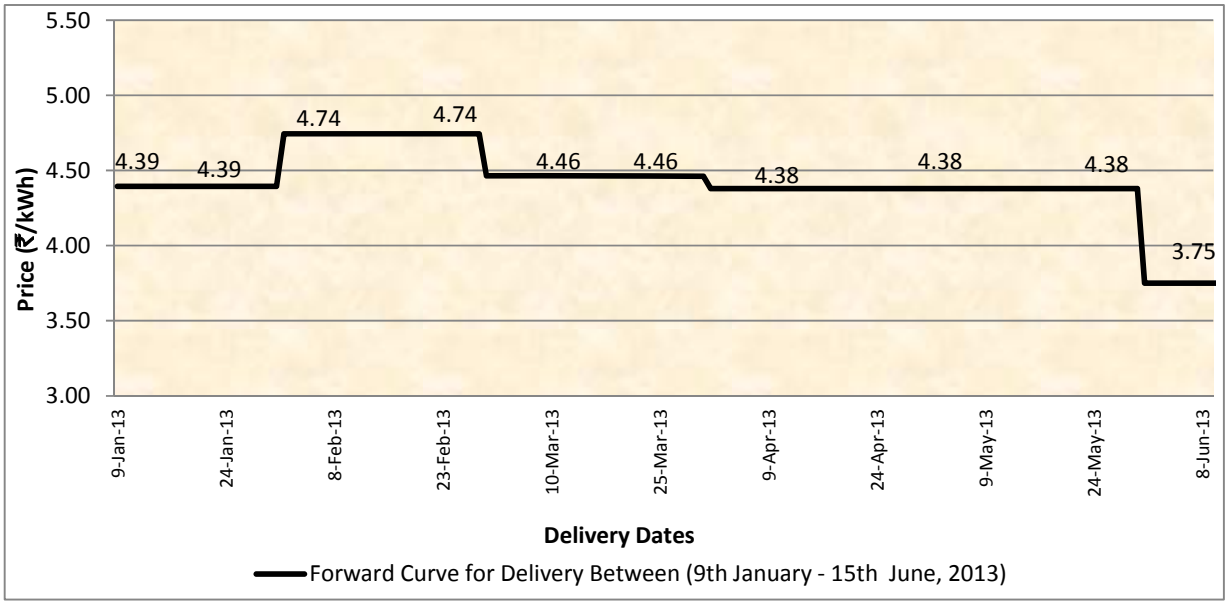
II. Forward Curve of Power Prices

Chart 5: Forward Curve for the period February 2013 – May 2014 as on 9th February, 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 February 2013 – 31st May 2014, i.e. upto fifteen month ahead period of power supply. This forward curve is as on 9th February 2013 but based on 95 contract prices reported by trader's upto 27th January 2013.

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



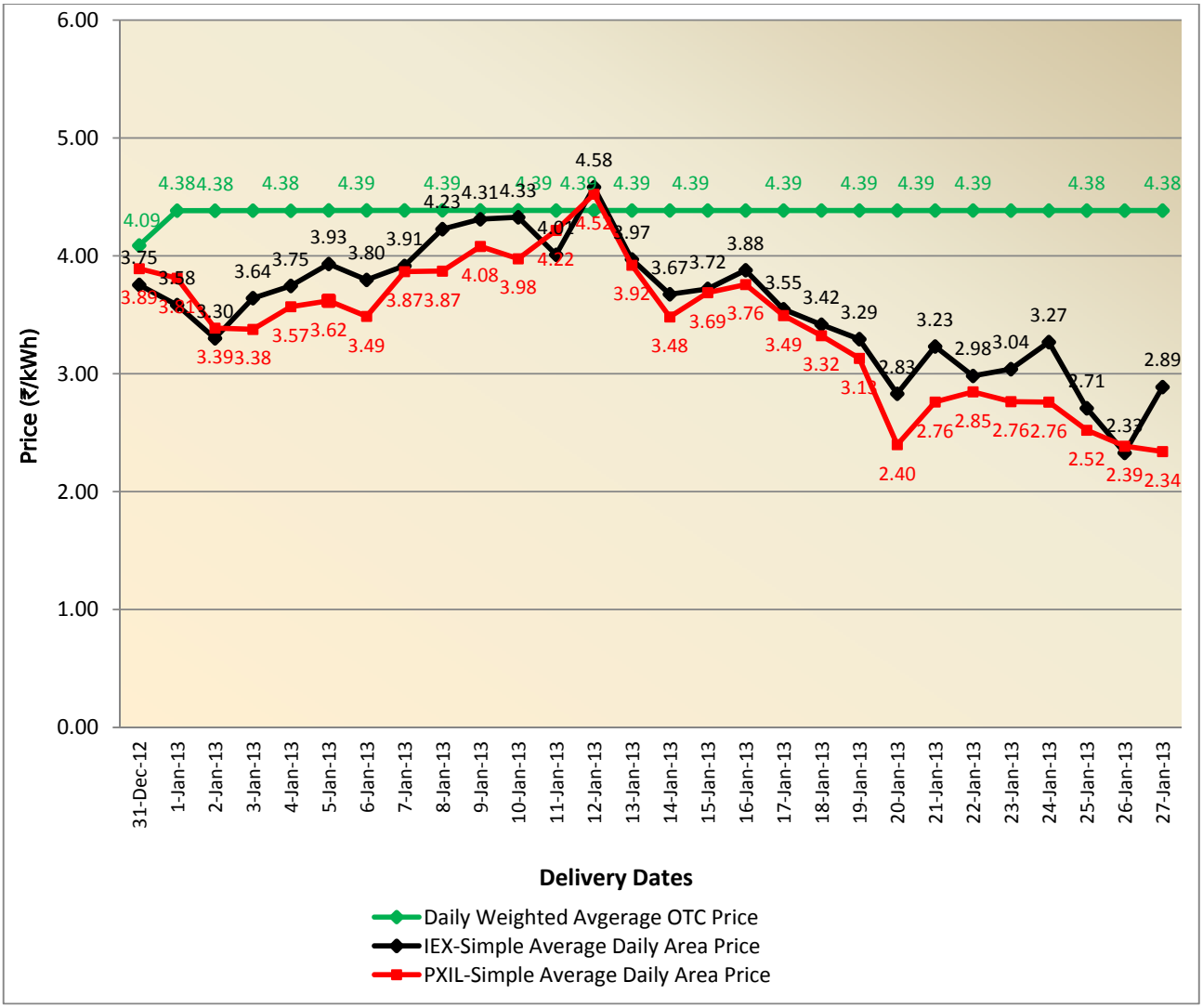
Observations

1. In the December 2012 report, the Forward Curve could be created only upto June 2013 since contracts reported expired in June 2013. Since new long duration contracts have been reported in January 2013, the forward curve has been extended upto May 2014.
2. It can be observed from Chart 5 the forward curve jumps up from June 2013 since the new contracts reported are higher price contracts.

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 January 2013



Observations

1. The prices in power exchanges have fluctuated over a range of ₹2.33 to ₹4.58/ kWh during the month. However the OTC - contracts delivery prices have been more or less stable in the range of ₹4.09 to ₹4.39/ 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.

Table 3: List of Trading Licensees who have undertaken Contracts in the period 31th December 2012 – 27th January 2013*

Sr.No.	Name of Licensee	31st Dec. 2012 - 6th Jan 2013	7th - 13th Jan. 2013	14th - 20th Jan. 2013	21st- 27th Jan.2013
1	PTC India Ltd.	Y(22)	Y(26)	Y(22)	Y(14)
2	NTPC Vidyut Vyapar Nigam Ltd.	Y(11)	NIL	Y(4)	Y(5)
3	Instinct Infra & Power Ltd.	Y(3)	NIL	NIL	NIL
4	GMR Energy Trading Ltd.	NIL	NIL	Y(2)	NIL
5	JSW Power Trading Company Ltd.	NIL	NIL	NIL	Y(1)
Total No. of Contracts		36	26	28	20
Total for month for all traders		110			

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