

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

[An analysis of all weekly reports (reporting period 4<sup>th</sup> – 31<sup>st</sup> March 2013) received from licensed-traders for the month of March 2013]



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

Prepared on 5<sup>th</sup> April 2013

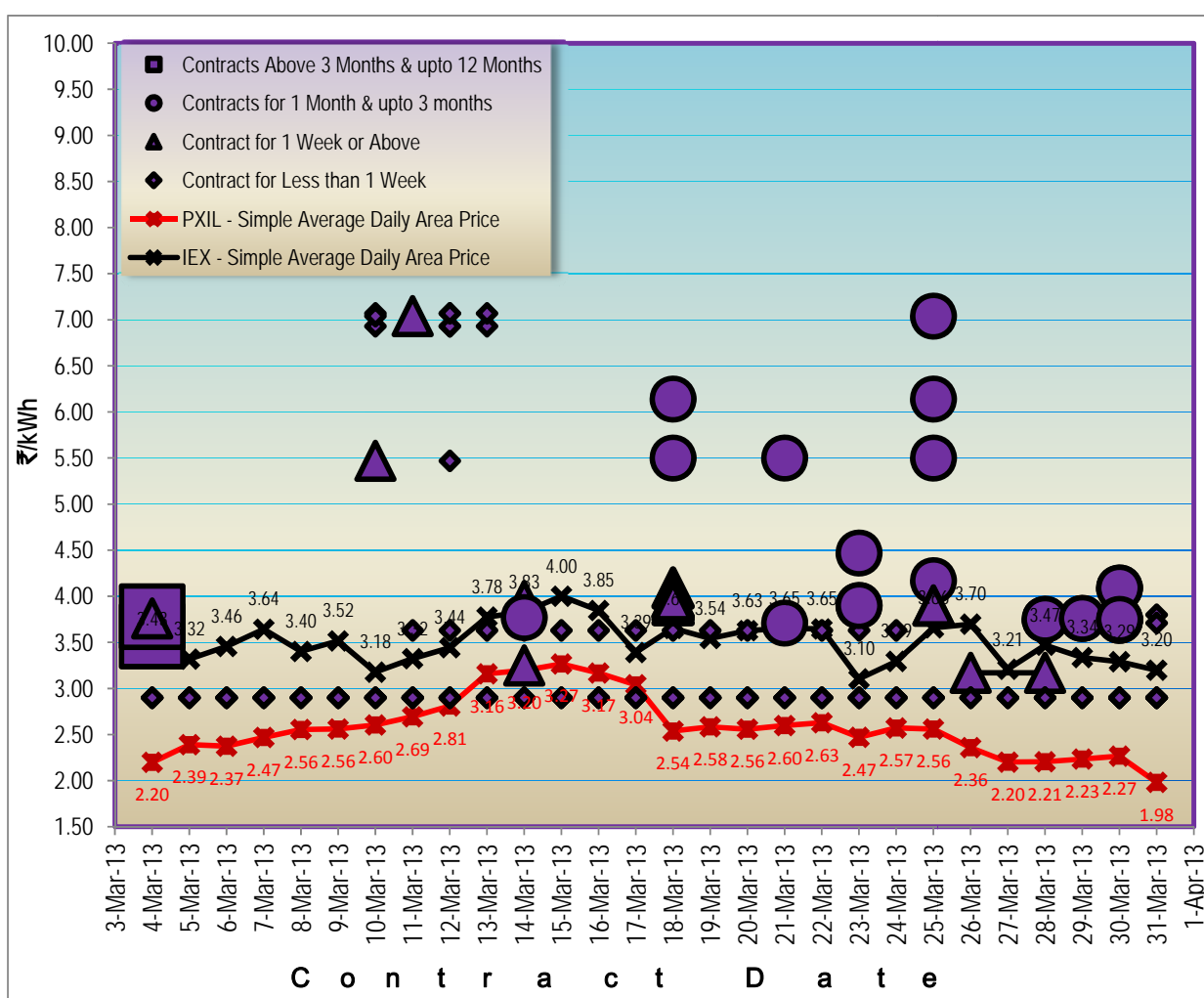
### Snapshot for March 2013

- ✓ The reported short-term contract volume for the month of March (analysis of four weeks) was 2741.04MUs whereas the same was 3149.27MUs for the month of February (analysis of five weeks). There is a 13% decrease in reported contract-volume.
- ✓ 60% of total volume has been contracted at above price of ₹4/kWh as compared to 75% during February 2013.
- ✓ Total number of contracts (including Swap & Banking) in March (analysis of four weeks) was 182 by 7 traders whereas in February (analysis of five weeks) was 170 by 9 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 4<sup>th</sup> - 31<sup>st</sup> March 2013. As seen in scatter diagram, the contracts were evenly spread over the reported period and the overall price was in the range of ₹2.90/kWh - ₹7.07/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		
4th -10th Mar. 13	2.90	7.07	3.97	293.73
11th- 17th Mar. 13	2.90	7.07	4.48	94.15
18th 24th Mar. 13	2.90	6.14	4.90	909.93
25th - 31st Mar. 13	2.90	7.04	4.80	748.91
<b>Total</b>				<b>2046.72</b>

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

(Includes Term Ahead Contracts at Power Exchanges)

Contract Date (2012-13)	4th March 2013	5th March 2013	6th March 2013	7th March 2013	8th March 2013	9th March 2013	10th March 2013	11th March 2013	12th March 2013	13th March 2013	14th March 2013	15th March 2013	16th March 2013	17th March 2013
IEX*(₹/kWh)	3.43	3.32	3.46	3.64	3.40	3.52	3.18	3.32	3.44	3.78	3.83	4.00	3.85	3.39
PXIL*(₹/kWh)	2.20	2.39	2.37	2.47	2.56	2.56	2.60	2.69	2.81	3.16	3.20	3.27	3.17	3.04
OTC Contracts** (₹/kWh)	3.97 (4th-10th Mar. 2013)							4.48 (11th - 17th Mar. 2013)						

Contract Date (2013)	18th March 2013	19th March 2013	20th March 2013	21st March 2013	22nd March 2013	23rd March 2013	24th March 2013	25th March 2013	26th March 2013	27th March 2013	28th March 2013	29th March 2013	30th March 2013	31st March 2013
IEX*(₹/kWh)	3.65	3.54	3.63	3.65	3.65	3.10	3.29	3.66	3.70	3.21	3.47	3.34	3.29	3.20
PXIL*(₹/kWh)	2.54	2.58	2.56	2.60	2.63	2.47	2.57	2.56	2.36	2.20	2.21	2.23	2.27	1.98
OTC Contracts** (₹/kWh)	4.90 (18th - 24th Mar. 2013)							4.80 (25th - 31st Mar. 2013)						

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

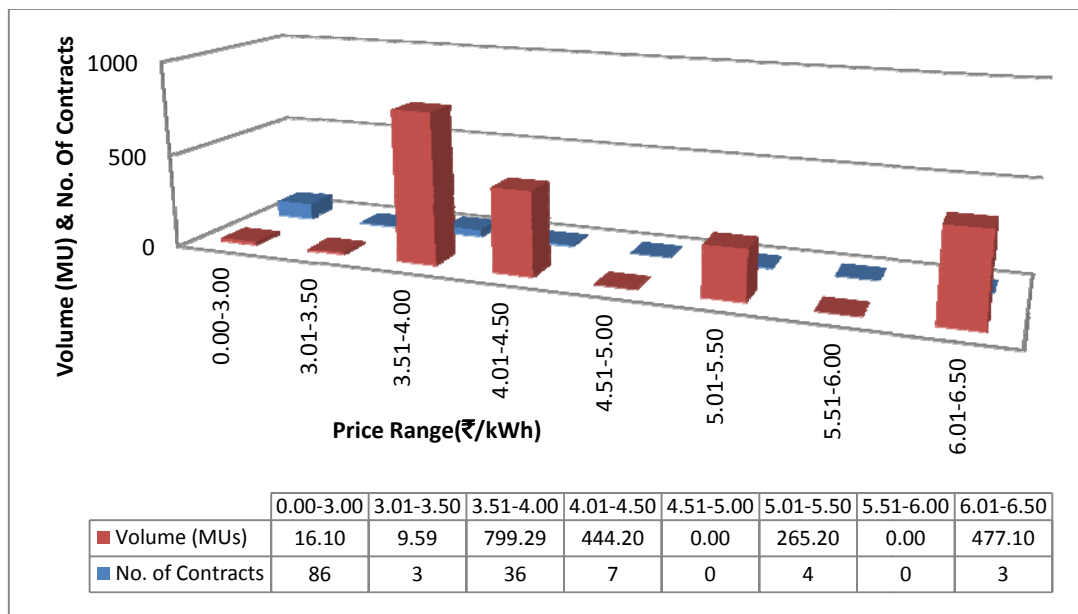
\*: Simple Average Area Prices for the Day for all the Bid Areas

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

## Observations

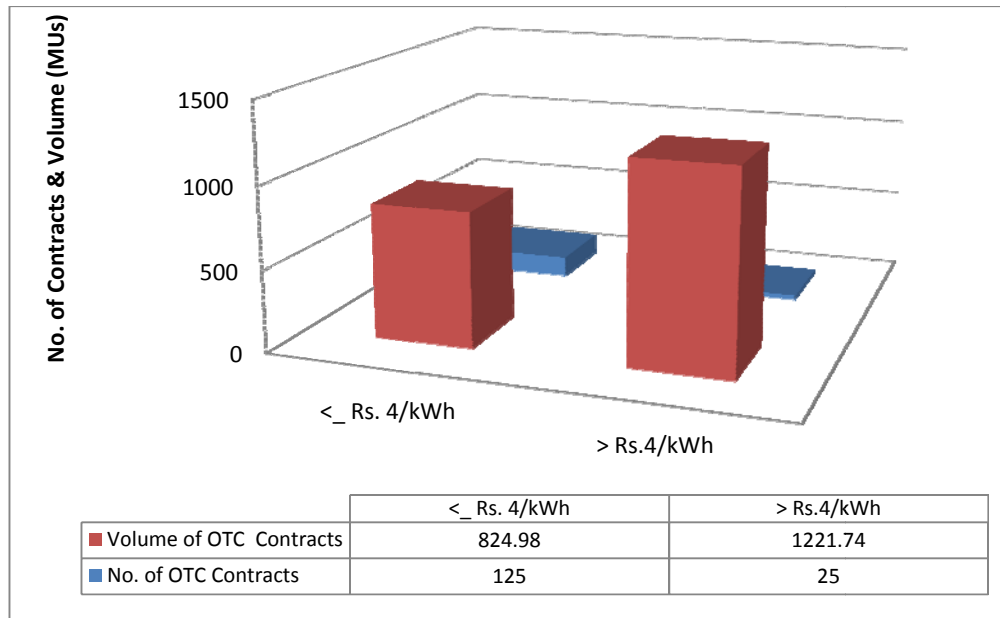
1. It is observed that IEX and PXIL prices were below the average OTC contract prices during the reported period. The minimum 24-hour average price in the exchanges during reported period was ₹1.98/kWh (PXIL, 31<sup>st</sup> March) while that in the OTC market was ₹2.90/kWh (contracts from 4<sup>th</sup> to 31<sup>st</sup> March 2013). Maximum 24-hour average price in Day-Ahead market at the exchange reached ₹4.00/kWh (IEX, 15<sup>th</sup> March 2013) and in OTC Market it was ₹7.07/kWh (10<sup>th</sup>, 12<sup>th</sup> & 13<sup>th</sup> March 2013) which were 'Round-the-Clock' power contracts. 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, 25 out of totals 150\* contracts were entered at above ₹4/kWh. However, the cumulative volume traded above ₹4/kWh was 1221.74\* MUs which is 60% of total OTC contracts for the reported period 4<sup>th</sup> – 31<sup>st</sup> March 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



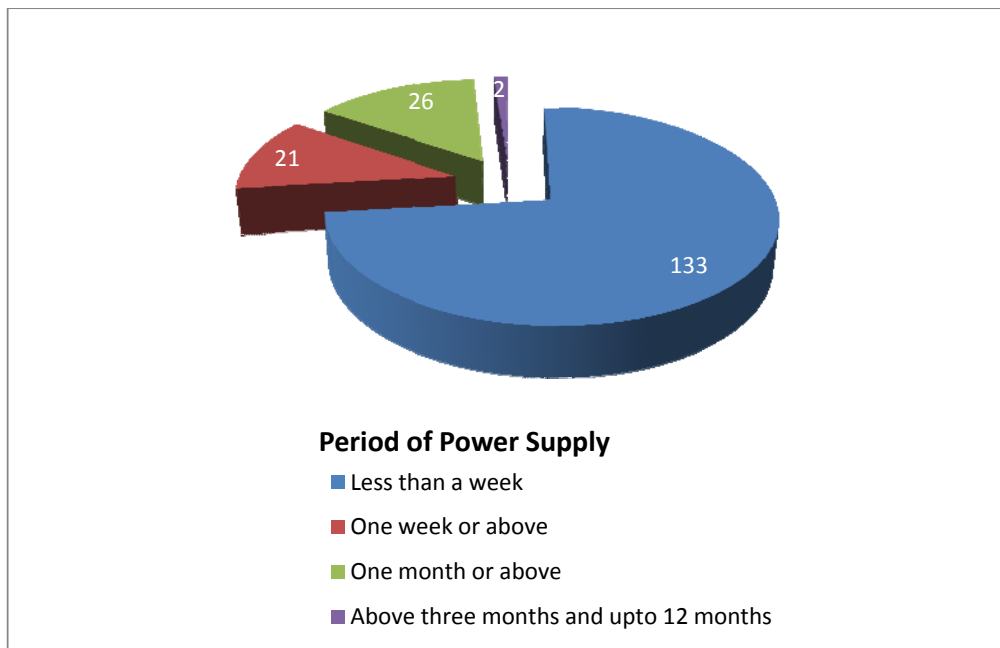
\* Excluding swap /banking contracts since they do not have any sale price.

Chart 3: Frequency Distribution of No. of OTC Contracts above ₹4/kWh during 4<sup>th</sup> – 31<sup>th</sup> March 2013



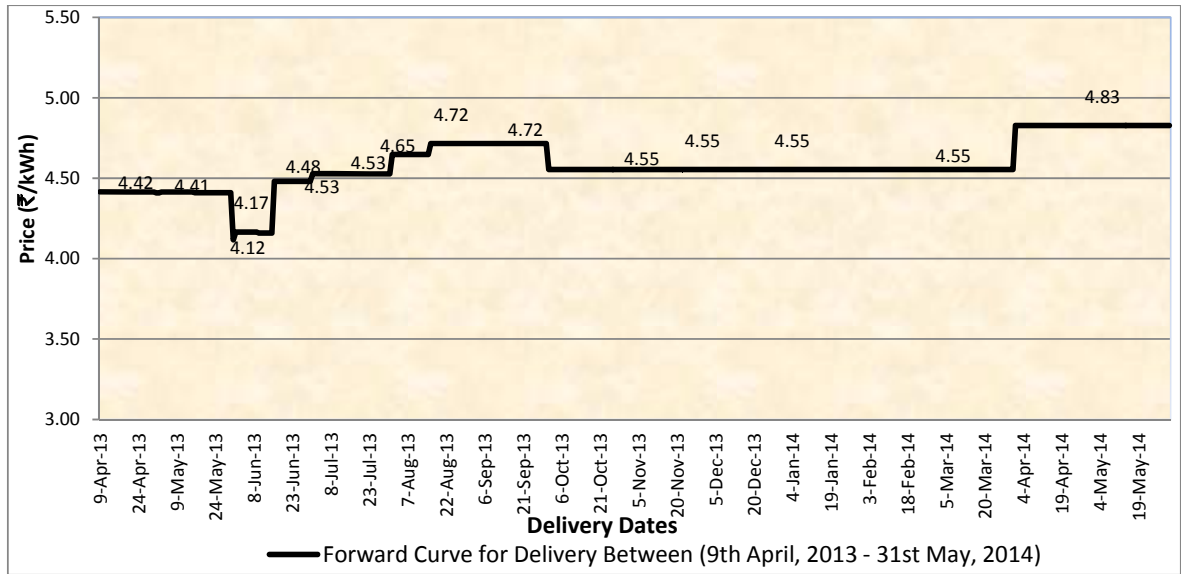
Following chart shows the number of contracts reported during March 2013, categorized according to the period of power supply.

Chart 4: Number of Contracts Reported in March 2013



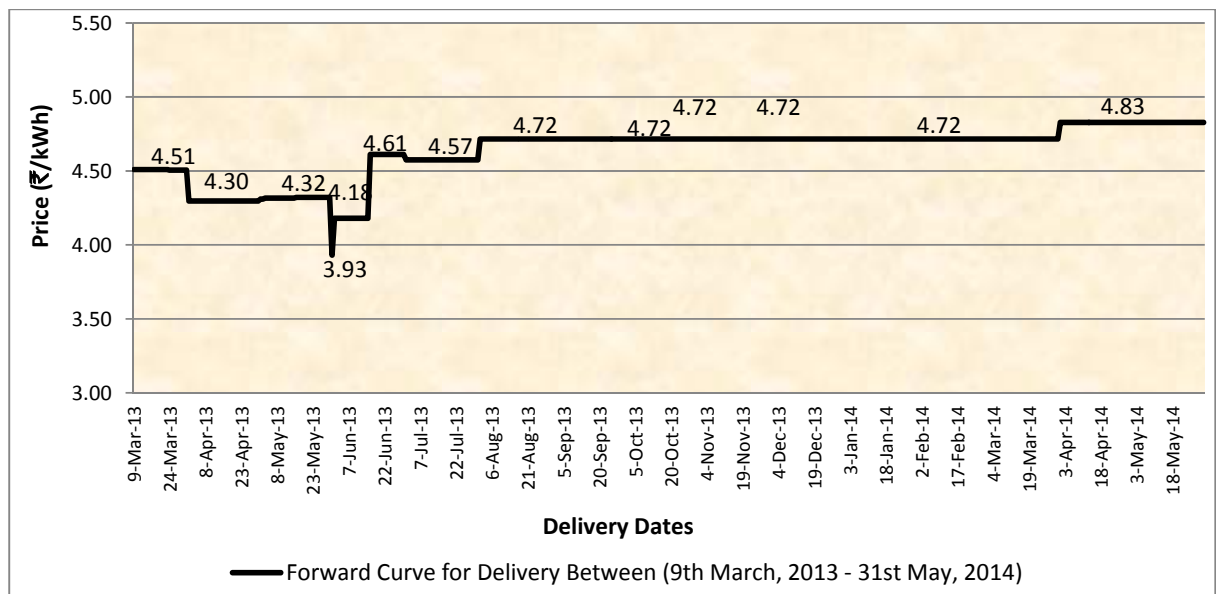
## II. Forward Curve of Power Prices

Chart 5: Forward Curve for the period April 2013 – May 2014 as on 9<sup>th</sup> April, 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 9<sup>th</sup> April 2013 – 31<sup>st</sup> May 2014, i.e. upto thirteen month ahead period of power supply. This forward curve is as on 9<sup>th</sup> April 2013 but based on 150 contract prices reported by trader's upto 31<sup>st</sup> March 2013.

Chart 5.1: Forward Curve for the period March 2013 – May 2014 as on 9<sup>th</sup> March, 2013



## Observations

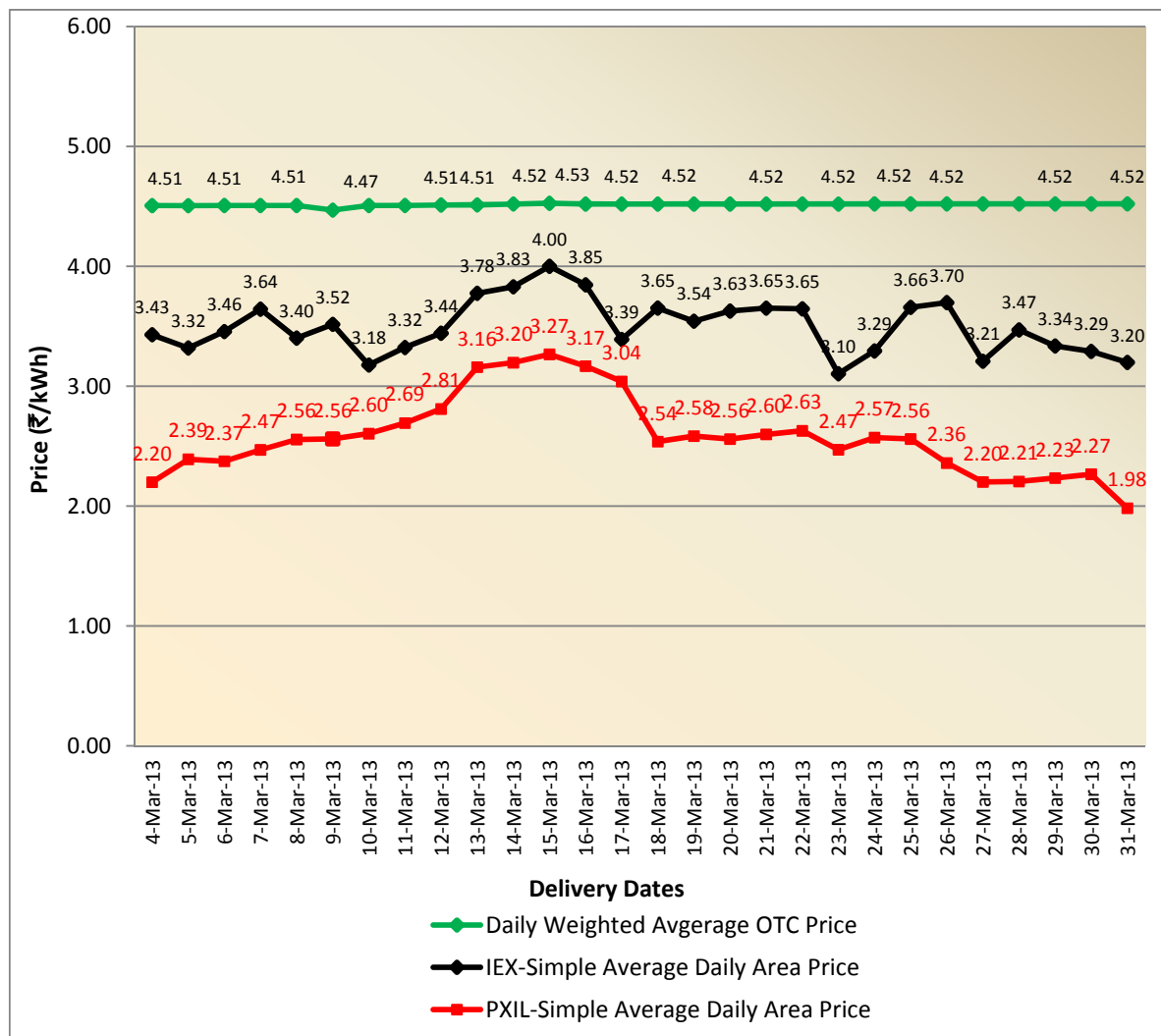
1. The Forward Curve as on 9<sup>th</sup> April 2013 has been formulated for a period of thirteen months based on reported contracts (for 9<sup>th</sup> April 2013 – 31<sup>st</sup> May 2014 period of power delivery). The numbers of contracts reported for the initial months (April and May 2013) were higher (28 and 21 contracts respectively) than those of later months i.e. April to May 2014 (5 and 2 contracts respectively). It is in alignment with the general trend that liquidity is higher for nearer months compared to farther months.
2. A comparison of forward curves (Chart 5 & Chart 5.1) gives us a picture of expected delivery price for March 2013 – May 2014 as on 9<sup>th</sup> March (Chart 5.1) and as on 9<sup>th</sup> April 2013 (Chart 5). It is possible that the power prices for the same delivery period differ depending upon time when contracts are being signed. For instance prices for expected delivery for May 2013 have increased from ₹4.32/kWh (in March 2013) to ₹4.41/kWh (in April 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 March 2013



## Observations

1. The prices in power exchanges have fluctuated over a range of ₹1.98 to ₹4.00/ kWh during the month. However the OTC - contracts delivery prices have been more or less stable in the range of ₹4.47 to ₹4.53/ 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 4<sup>th</sup> - 31<sup>st</sup> March 2013\***

Sr.No.	Name of Licensee	4th-10th Mar. 13	11th-17th Mar. 13	18th-24th Mar. 13	25th-31st Mar. 13
1	PTC India Ltd.	Y(24)	Y(42)	Y(34)	Y(27)
2	NTPC Vidyut Vyapar Nigam Ltd.	Y(4)	Y(5)	Y(11)	Y(11)
3	GMR Energy Trading Ltd	NIL	NIL	Y(1)	Y(8)
4	National Energy Trading & Services Ltd	NIL	NIL	Y(6)	Y(2)
5	Mittal Processors (P) Ltd.	NIL	NIL	Y(2)	Y(1)
6	Instinct Infra & Power Ltd.	NIL	Y(1)	Y(1)	NIL
7	Tata Power Trading Company (P) Ltd	Y(2)	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