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

[An analysis of all weekly reports (reporting period 30th January – 26th February 2012) received from licensed-traders for the month of February 2012]

Prepared on 9th March 2012

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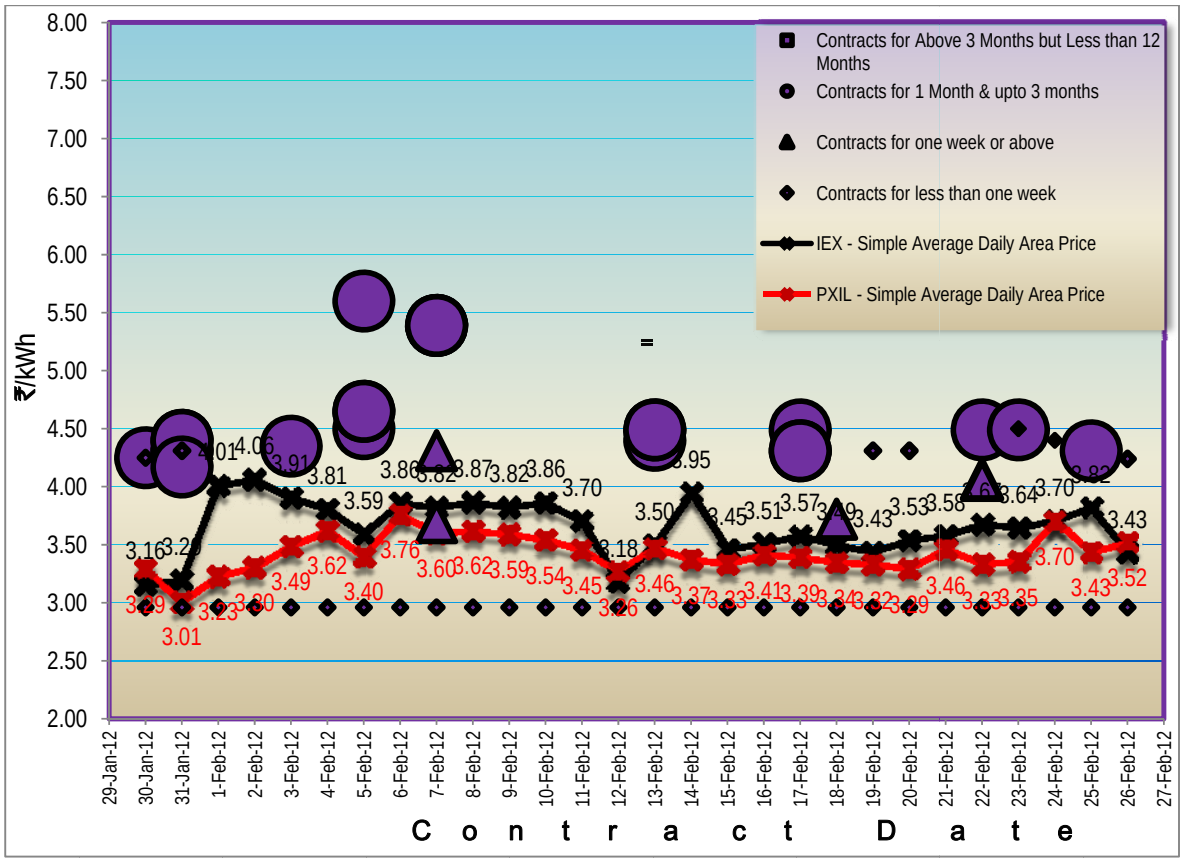
Snapshot for February 2012

- ✓ The reported short-term contract volume for the month of February 2012 (analysis of four weeks) was 1158.14MUs whereas the same was 1895.48MUs for the month of January (analysis of five weeks). There is a 39% decrease in reported contract-volume.
- ✓ 97% of total volume has been contracted at above price of ₹ 4/kWh.
- ✓ Total number of contracts (including Swap & Banking) in February (analysis of four weeks) was 107 by 5 traders whereas in January (analysis of five weeks) it was 137 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 30th January – 26th February 2012. As is seen from the scatter diagram, most of the contracts were concentrated in the first and last week of the reported period and the price was in a range of ₹ 2.96/kWh to ₹5.60/ kWh. The contracts reported were mostly for less than a week (72 Contracts) and for a months and above (25 Contracts) period of power delivery.

Chart 1: Scatter Diagram depicting Price of Electricity for OTC contracts and in Power Exchanges



It may be noted that Power Exchange is a day ahead market with standardized contracts and no 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		
30th January-5th February	2.96	5.60	4.51	522.43
6th-12th February	2.96	5.39	4.62	40.98
13th- 19th February	2.96	4.49	4.30	291.96
20th- 26th February	2.96	4.87	4.29	96.97
Total				952.33

Table 2: Comparison of Prices in Day Ahead Market with OTC Contracts (Includes Term Ahead Contracts at Power Exchanges)

Contract Date (2012)	30th Jan.	31st Jan.	1st Feb.	2nd Feb.	3rd Feb.	4th Feb.	5th Feb.	6th Feb.	7th Feb.	8th Feb.	9th Feb.	10th Feb.	11th Feb.	12th Feb.
IEX (₹ / kWh)	3.16	3.20	4.01	4.06	3.91	3.81	3.59	3.86	3.82	3.87	3.82	3.86	3.70	3.18
PXIL (₹ / kWh)	3.29	3.01	3.23	3.30	3.49	3.62	3.40	3.76	3.60	3.62	3.59	3.54	3.45	3.26
OTC Contracts (₹/ kWh)	4.51							4.62						
	30th January-5th February							6th-12th February						

Contract Date (2012)	13th Feb.	14th Feb	15th Feb.	16th Feb.	17th Feb.	18th Feb.	19th Feb.	20th Feb.	21st Feb.	22nd Feb.	23rd Feb.	24th Feb.	25th Feb.	26th Feb.
IEX (₹ / kWh)	3.50	3.95	3.45	3.51	3.57	3.49	3.43	3.53	3.58	3.67	3.64	3.70	3.82	3.43
PXIL (₹ / kWh)	3.46	3.37	3.33	3.41	3.39	3.34	3.32	3.29	3.46	3.33	3.35	3.70	3.43	3.52
OTC Contracts (₹/ kWh)	4.30							4.29						
	13th- 19th February							20th- 26th February						

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

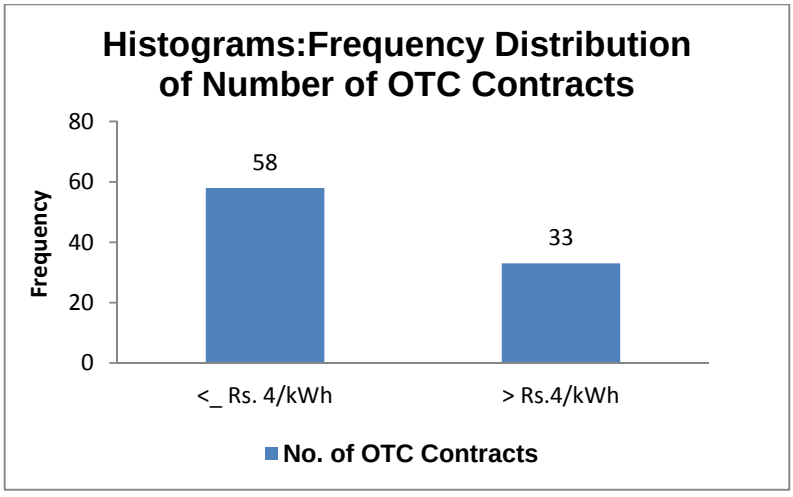
Observations

1. In the month of February, OTC contract prices were higher than the Indian Energy Exchange (IEX) and Power Exchange of India Ltd (PXIL) prices.

2. The minimum price in the exchanges during reported period was ₹3.01/kWh (PXIL, 31st January) while that in the OTC market was ₹2.96/kWh (30th January- 26th February 2012). Maximum price in Day-Ahead market at the exchange reached ₹4.06/kWh (IEX, 2nd February) and in OTC Market it was ₹5.60/kWh (5th February) which was a 'peak' power contract. It may be noted that Power Exchange is a day ahead market with standardized contracts and no 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.

3. As for as the number of contracts are concerned, 33 out of totals 91♣ contracts were entered above ₹4/kWh. There were a total 107 contracts including swap & banking during the month.

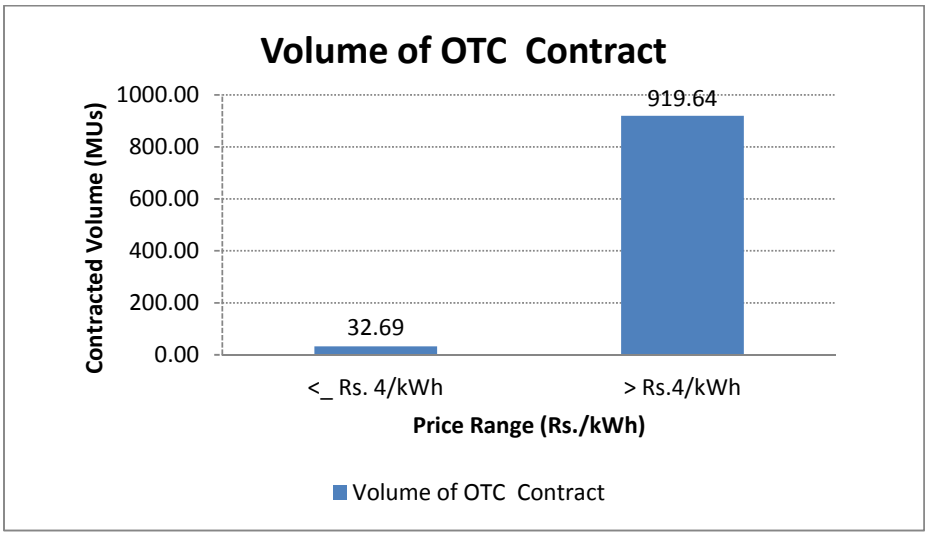
Chart 2: Histogram of Number of OTC Contracts



4. The cumulative volume traded above ₹4/kWh was 919.64♣ MUs which is 97% of total OTC contracts for the reported period 30th January- 26th February 2012).

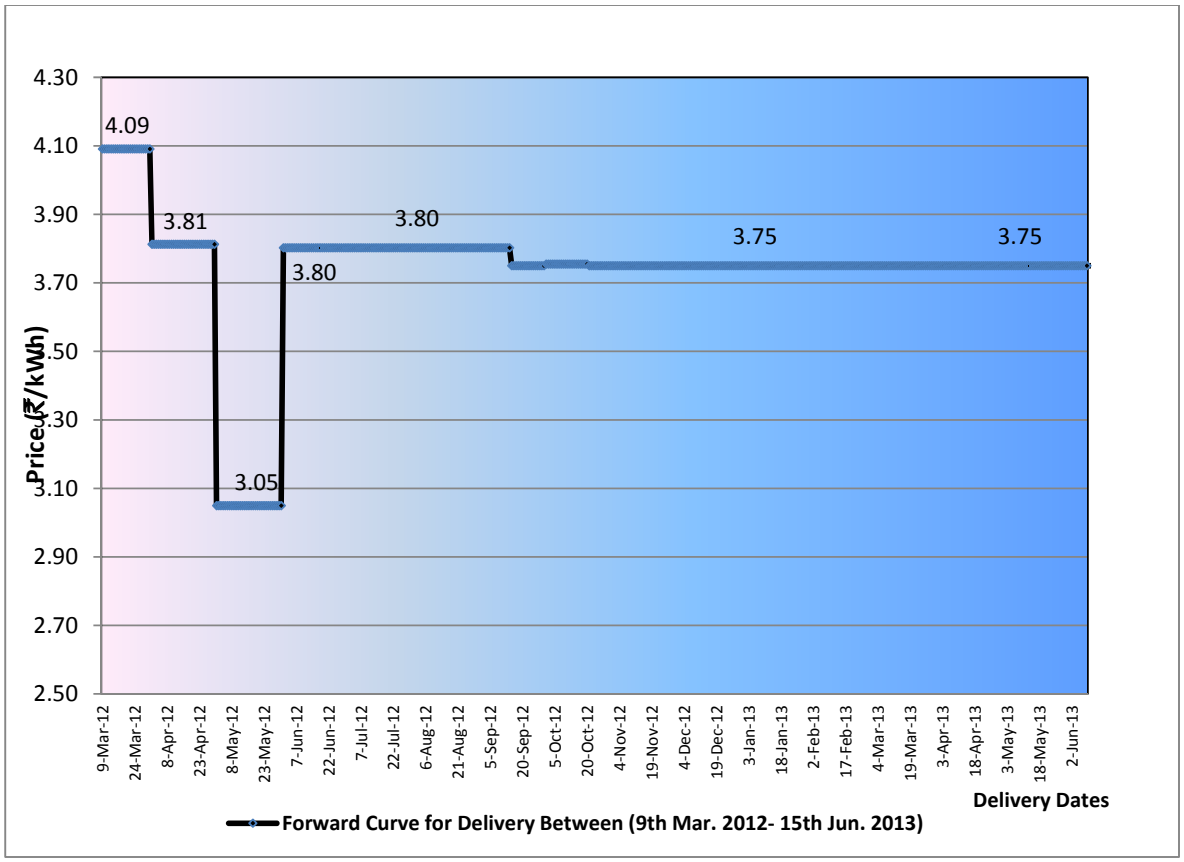
♣ *Excluding swap /banking contracts since they do not have any sale price.*

Chart 3: Cumulative Volume Traded below and above ₹ 4/kWh during 30th January- 26th February 2012



II. Forward Curve of Power Prices

Chart 4: Forward Curve for 9th March 2012 - 15th June 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 March 2012 - 15th June 2013, i.e. fifteen months ahead period of power supply. This forward curve is as on 9th March 2012 but based on 91 contract prices reported by trader's upto 26th February 2012.

Observations

1. The forward curve for the next fifteen months period i.e. 9th March 2012 - 15th June 2013 generally followed a declining trend till May 2012 and then followed an upward trend till June 2013.
2. The Forward Curve has been formulated for a period of fifteen months based on reported contracts (for 9th March 2012 - 15th June 2013 period of power delivery). The

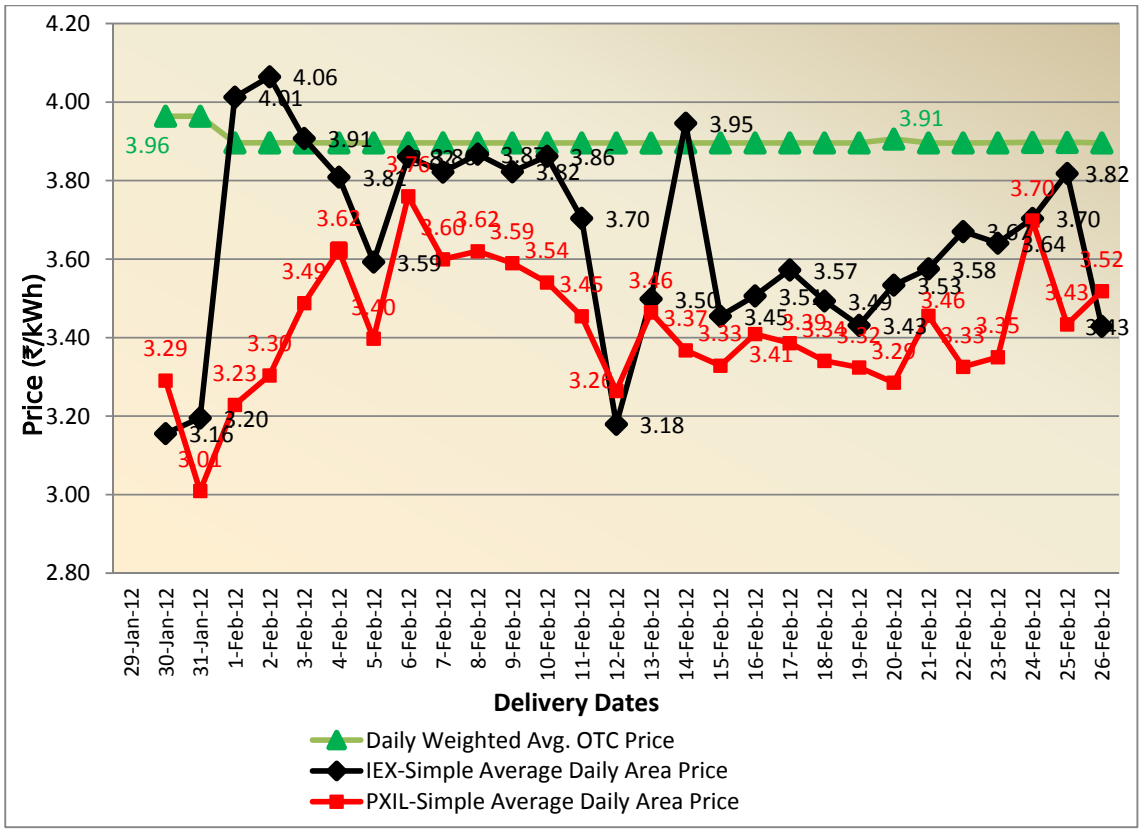
price followed a declining trend during March 2012 to May 2012 during which price declined from ₹4.09 to ₹3.05/kWh. The curve followed a rising trend till June 2013 during which price increased from ₹3.05 to ₹3.75/kWh. The numbers of contracts reported for the initial months (March and April) were higher (21 to 37 contracts) than those of later months (1 or 2 contracts). 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 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 forward curve.

It is observed that IEX and PXIL prices were above the average OTC contract prices except at the end of the reported period.

Chart 5: Comparison OTC deliveries and Power Exchange Spot Delivery Price for February 2012



Observations

1. The Post-Facto graph shows that generally power exchanges' prices remained lower than OTC-contracts' prices during the reported period. It may be noted that Power Exchange is a day ahead market with standardized contracts with no 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.

Overall Comparative View between January and February 2012

1. Following table shows the number of contracts reported during January and February 2012 categorized according to the period of power supply.

Table 3: Number of Contracts Reported in January and February 2012[Ψ]

	Jan-12 (five weeks)	Feb-12 (four weeks)
Above three months and upto 12 months	1	0
One month or above	43	25
One week or above	8	10
Less than a week	85	72
Total	137	107

From the above table it is clear that the total numbers of contracts for power deliveries for the category one month or above; were more in January (44 Contracts) than in February (25 Contracts).

[Ψ] *Including swap/ banking contracts between different DISCOMS*

A comparative table to represent maximum and minimum prices at both the exchanges vis-à-vis OTC contracts prices is given below:

Table 3: Maximum and Minimum Prices - A Comparative View ₹/ kWh (Dates)

	January 2012 (26th Dec. 2011 - 29th Jan. 2012)		February 2012 (30th Jan. - 26th Feb.)	
	Maximum	Minimum	Maximum	Minimum
IEX	4.06 (27th December 2011)	2.97 (8th January 2012)	4.06 (2nd February)	3.16 (20th January)
PXIL	4.40(4th January 2012)	2.75 (15th January 2012)	3.76 (6th February)	3.01 (31st January)
OTC Contracts	5.60 (30th December)	2.96 (26th Dec. 2011 - 29th Jan. 2012)	5.60 (5th February)	2.96 (30th Jan. - 26th February)

Overall inferences

1. From Chart-1 (Contracted date price analysis), it is observed that for most of OTC contract, prices were higher than the IEX and PXIL spot prices during the month.
2. From Chart-5 (post facto power delivery date analysis), it is observed the power exchanges' prices remained lower than OTC-contracts' prices in the reported period.
3. It is also seen that there have been a large number (72) of contracts for less than week period of delivery in the reported period.

Annexure-I

Table 4: List of Trading Licensees who have undertaken Contracts in the period 30th January – 26th February 2012*

Sr.No.	Name of Licensee	30th January- 5th February	6th-12th February	13th- 19th February	20th- 26th February
1	PTC India Ltd.	Y(30)	Y(20)	Y(14)	Y(15)
2	NTPC Vidyut Vyapar Nigam Ltd.	Y(4)	Y(2)	Y(12)	Y(5)
3	National Energy Trading & Services Ltd.	NIL	NIL	NIL	Y(2)
4	JSW Power Trading Ltd.	NIL	NIL	Y(1)	NIL
5	Jai Prakash Associate Ltd.	NIL	NIL	NIL	Y(2)
Total No. of Contracts		34	22	27	24
Total for month for all traders					107

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 four 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.