

MONTHLY OTC (ELECTRICITY TRADERS) REPORT (APRIL 2014)

[An analysis of all weekly reports received from licensed-traders for 31st March- 4th May 2014]



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Central Electricity Regulatory Commission

Prepared on 12th May 2014

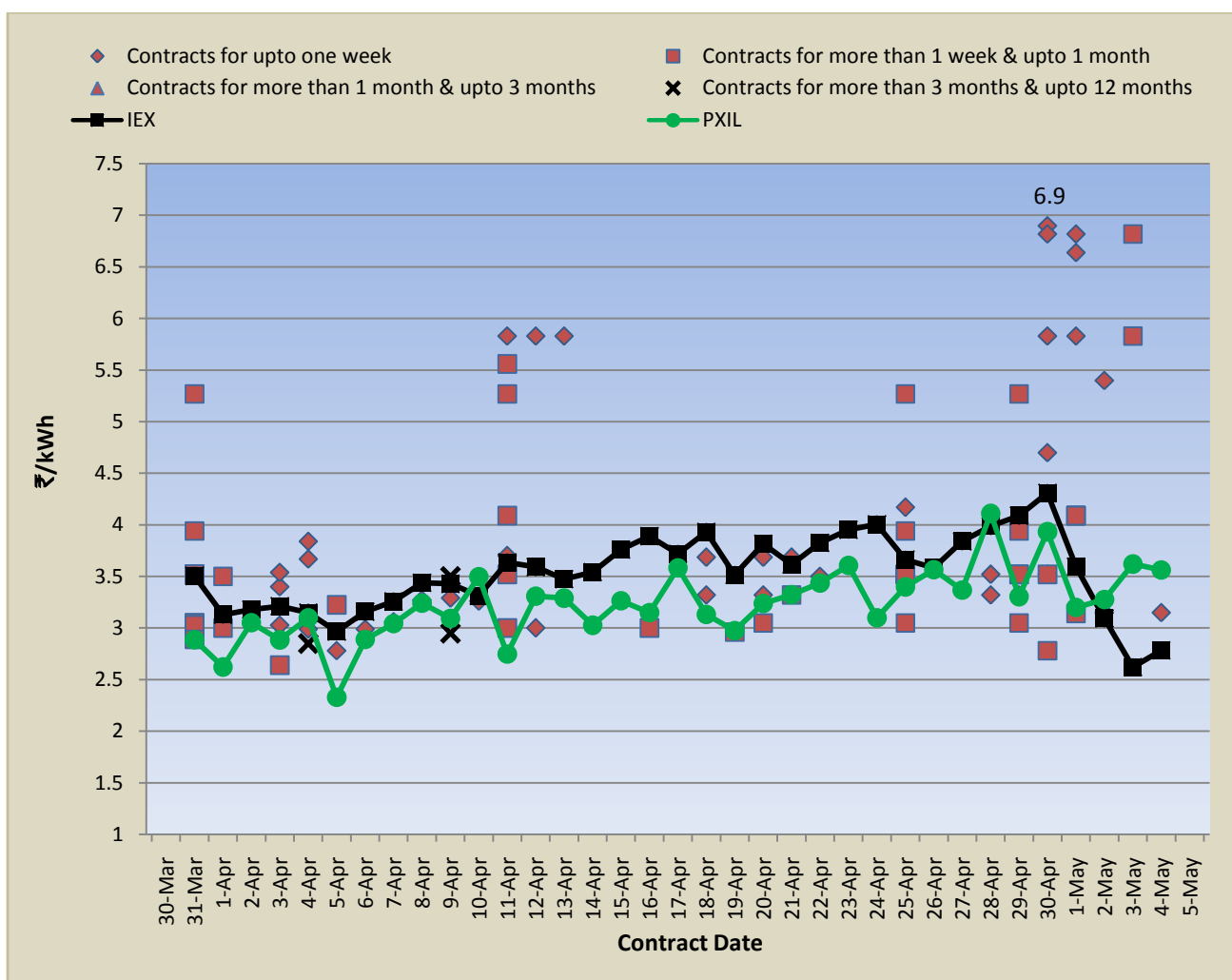
Snapshot for April 2014

- ✓ The reported short-term volume contracted for April 2014 (analysis of five weeks) is 4300 MUs whereas the same was 671 MUs for March 2014 (analysis of four weeks). Average weekly volume contracted during April has increased by 413% in comparison to volume contracted during March.
- ✓ The percentage of total volume contracted in April at price more than ₹4/kWh remains same as that was during March, i.e. at 14%
- ✓ Total number of contracts (including swap & banking) executed during April is 109 by 8 traders whereas the number of contracts executed during March was 33 by 7 traders.

I. Comparison of Short Term OTC contracts prices with Power Exchange prices (on Contracted Date)

The scatter diagram shows a comparative analysis of price movement in OTC and power exchange markets in April 2014. As seen in scatter diagram, majority of the contracts has been executed in the last week of the demonstrated period (refer to annexure I for contracts executed week-wise) and the overall price of OTC contracts executed is in the range of ₹2.64/kWh - ₹6.90/kWh whereas the prices on the exchanges varied between ₹2.33/kWh - ₹4.31/kWh

Chart 1: Scatter Diagram depicting price of electricity in OTC contracts and in Power Exchanges



Note: 1. Day ahead markets on Power Exchanges are 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 and Power Exchanges contracts should be seen in this light.

2. The price comparison between the Power Exchanges and the OTC contracts should also be seen in the light that the delivery point for day ahead contracts is the periphery of regional transmission system in which the grid-connected entity is located whereas the delivery point for OTC contracts may vary from contract to contract. The delivery point may be state or regional periphery or any other point as per the contract executed.

Table 1 shows week-wise minimum and maximum sale prices, weighted average of sale prices and total contracted volume. Table 2 shows comparison between prices discovered on exchanges and prices contracted by traders in OTC market.

Table I: Price and Volume of OTC Contracts

Week	Range of Sale Price (₹/kWh)		Weighted Average of Sale Price (₹/kWh)	Total Volume (MUs)
	Min	Max		
31 st Mar – 6 th Apr	2.64	5.27	3.75	1150
7 th – 13 th Apr	2.95	5.83	3.98	265
14 th – 20 th Apr	2.96	3.69	3.03	80
21 st – 27 th Apr	3.05	5.27	3.82	1079
28 th Apr – 4 th May	2.78	6.90	3.71	1438
Gross			3.75	4012

Table 2: Comparison of prices in Day Ahead Market and in OTC Contracts

Contract Date	31-Mar-14	01-Apr-14	02-Apr-14	03-Apr-14	04-Apr-14	05-Apr-14	06-Apr-14	07-Apr-14	08-Apr-14	09-Apr-14	10-Apr-14	11-Apr-14	12-Apr-14	13-Apr-14
IEX* (₹/kWh)	3.50	3.13	3.18	3.21	3.15	2.97	3.16	3.26	3.44	3.43	3.31	3.64	3.59	3.47
PXIL* (₹/kWh)	2.89	2.62	3.05	2.88	3.10	2.33	2.89	3.04	3.24	3.09	3.50	2.75	3.31	3.29
OTC Contract** (₹/kWh)	3.75							3.98						

Contract Date	14-Apr-14	15-Apr-14	16-Apr-14	17-Apr-14	18-Apr-14	19-Apr-14	20-Apr-14	21-Apr-14	22-Apr-14	23-Apr-14	24-Apr-14	25-Apr-14	26-Apr-14	27-Apr-14
IEX* (₹/kWh)	3.54	3.76	3.89	3.72	3.93	3.52	3.82	3.62	3.83	3.95	4.01	3.66	3.58	3.84
PXIL* (₹/kWh)	3.03	3.27	3.15	3.58	3.13	2.97	3.24	3.32	3.44	3.61	3.10	3.40	3.57	3.37
OTC Contract** (₹/kWh)	3.03							3.82						

Contract Date	28-Apr-14	29-Apr-14	30-Apr-14	01-May-14	02-May-14	03-May-14	04-May-14
IEX* (₹/kWh)	3.99	4.09	4.31	3.60	3.09	2.62	2.78
PXIL* (₹/kWh)	4.11	3.30	3.93	3.20	3.28	3.62	3.56
OTC Contract** (₹/kWh)	3.71						

Source: IEX & PXIL Websites

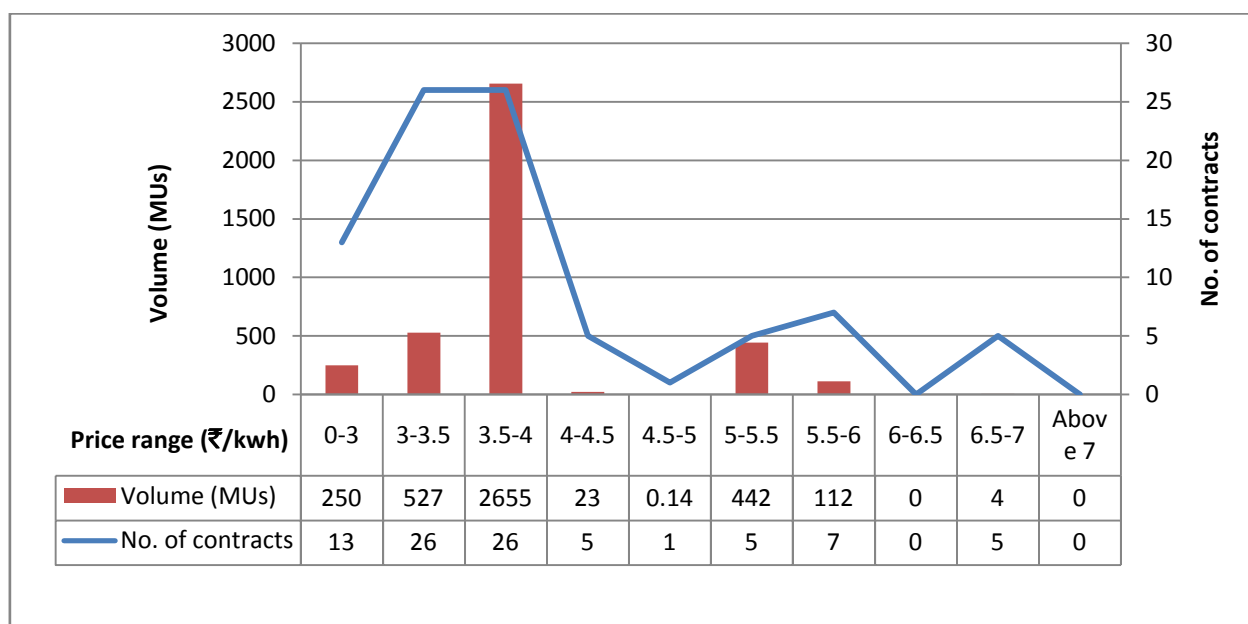
*: Simple Average Area Prices for all bid areas

** : Weekly Weighted Average Prices for OTC- Contracts

Observations

1. It is observed that weekly weighted average OTC contract prices were usually higher than average daily prices on Exchanges during the reporting period. The minimum price in OTC market was ₹2.64/kWh (3rd April 2014) for 'RTC' contract while on the exchanges it was ₹2.33/kWh (PXIL, 5th April 2014). The maximum price in OTC market was ₹6.90/kWh (30th April 2014) for 'RTC' contract while for Day-Ahead market on the exchange the maximum price was ₹4.31/kWh (IEX, 30th April 2014).
2. Only 23 out of 88* contracts were entered into at sale price above ₹4/kWh for a cumulative volume of 581 MU's that is about 14% of total OTC contracts* volume for April 2014.

Chart 2: Frequency distribution of number & volume of OTC contracts

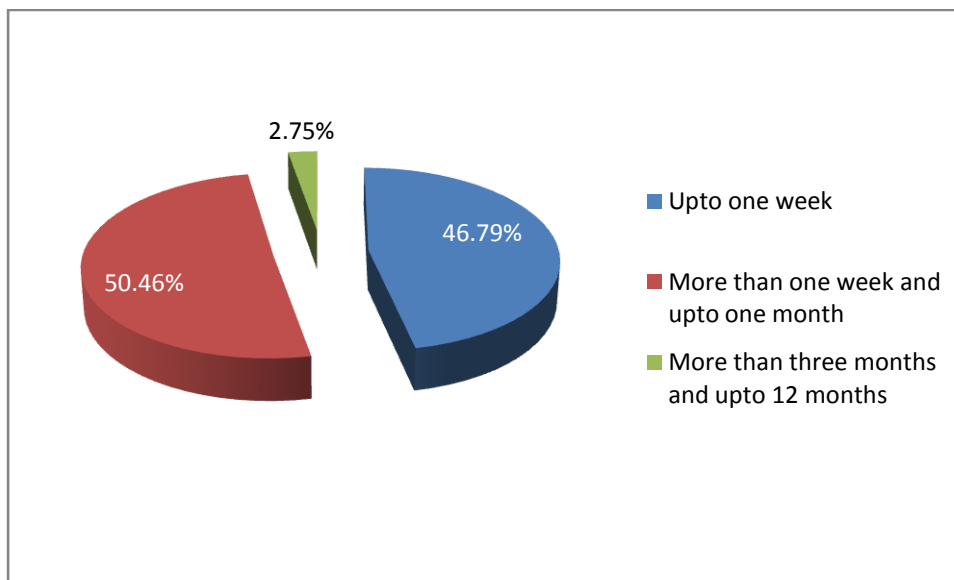


3. It is observed that majority of the volume contracted (2655 MUs) is in the price range of ₹ 3.5-4 and the maximum number of contracts have been executed in the price range of ₹ 3-3.5 & ₹ 3.5-4.
4. The high price transactions in the range of ₹ 6.5-7 have been undertaken in the southern region.

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

5. The following chart shows the percentage of contracts reported during April 2014, categorized according to the period of power supply. There were a total 109 contracts including swap/ banking reported for the period. It can be observed that majority of the contracts were executed for period upto one month.

Chart 3: Number of contracts reported in April 2014



II. Forward Curve of Power Prices

A forward curve reflects present day's expectation of spot prices for a future period. Forward curve for electricity price has been drawn for May 2014 – May 2015 based on contracts executed until April 2014. Also, forward price curve drawn for March 2014 report has been depicted for comparison purposes.

Chart 4.1: Forward Curve for the period May 2014 –May 2015

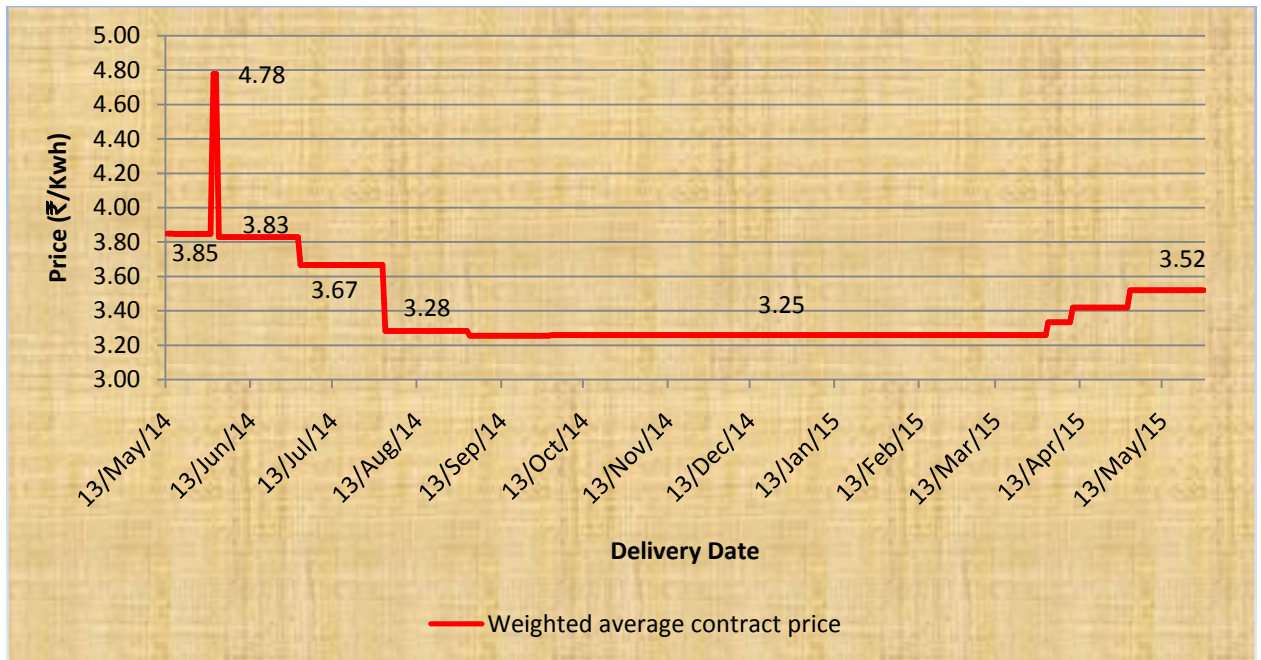
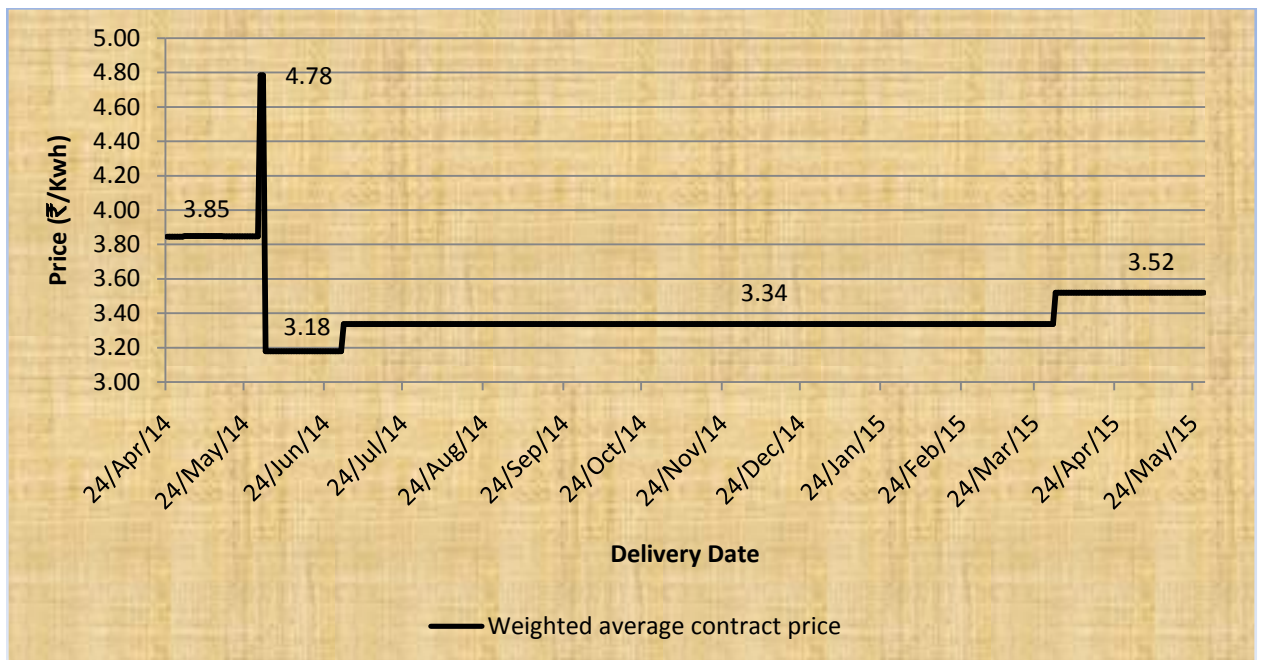


Chart 4.2: Forward Curve for the period April 2014 –May 2015



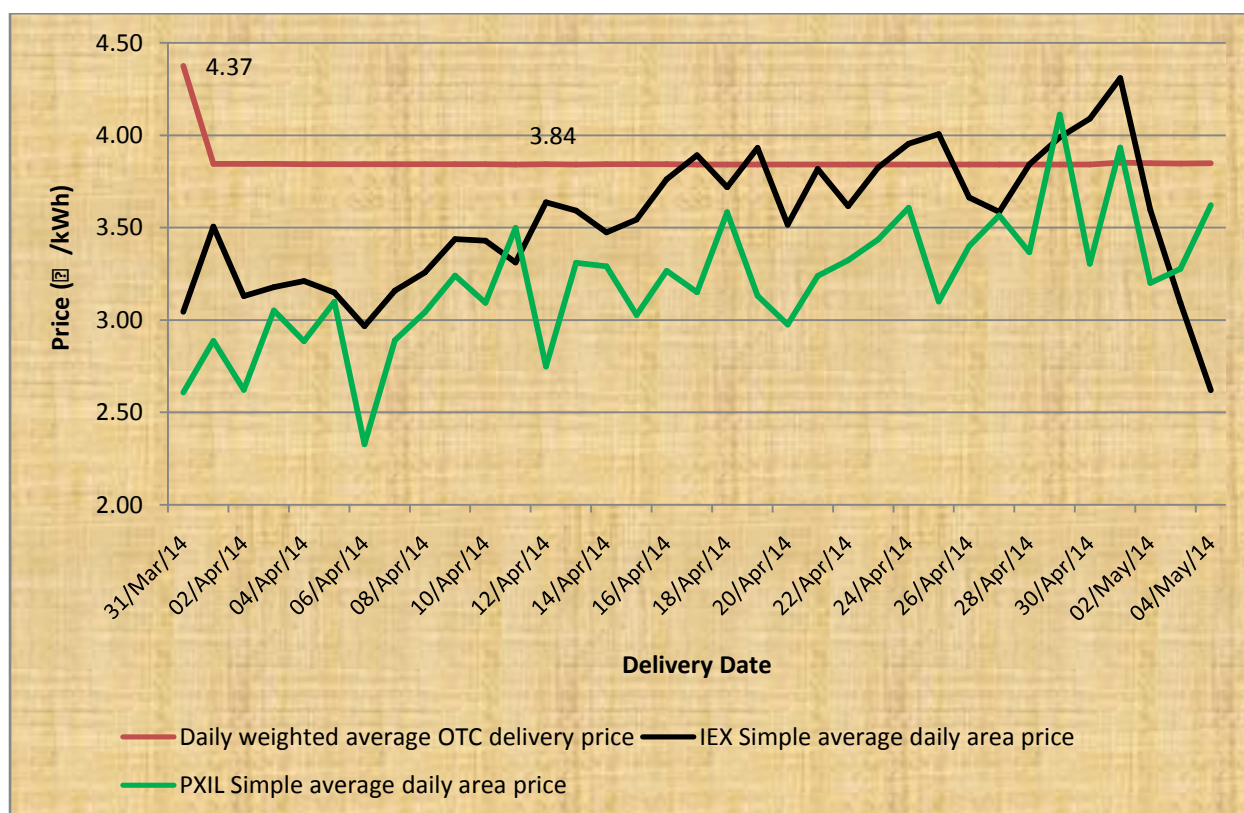
Observations

1. The forward prices for May, June, July and August 2014 are ₹3.85/kWh, ₹3.83/kWh, ₹3.67/kWh, and ₹3.28/kWh respectively.
2. The prices for May 2014 are based on about 40 contracts, prices for June 2014 are based on about 30 contracts, prices for July 2014 are based on 14 contracts, prices for August 2014 - March 2015 are based on about 7-9 contracts and prices from April onwards are based on 1-3 contracts. Thus, the liquidity is higher in terms of number of contracts in the nearer months in comparison to farther months and therefore the price indicators are better for nearer months.
3. Up until now, the forward prices from June onwards were based on 1-8 contracts only. With steep increase in volume contracted (541% increase over volume contracted in March) and high number of contracts executed in April, the shape of the forward price has undergone a major change.
4. The change in the shape of the curve has been due to high volumes contracted for delivery in the respective months in comparison to the volumes contracted earlier for the same months. In addition, the weighted average price for new contracts is higher/lower from weighted average price of the contracts executed earlier.
5. As mentioned above, the forward prices (especially for May, June & July 2014) are based on slew of contracts and the curve can therefore be deemed as fairly robust lending credence to the contracted price levels.

III. Post-facto Comparison of Prices in OTC Contracts and in Power Exchanges (on Power Delivery Dates)

The post facto graph compares the daily weighted average delivery price of OTC contracts price vis-à-vis power exchanges day ahead prices for April 2014 (OTC contracts may have been executed earlier but delivered on the same days as on the exchange spot deliveries). The methodology of calculating the data points of OTC prices is same as that used for calculating prices for the forward curve.

Chart 5: Comparison OTC delivery price and Power Exchange spot delivery price for April 2014



Observations

1. Daily weighted average delivery price of OTC contracts is almost constant at about ₹3.84/kWh while the power exchanges spot prices have fluctuated over a range of ₹2.33/kWh to ₹4.31/kWh.
2. It can be seen that the weighted average delivery price of OTC contracts is usually higher than the power exchanges spot prices but on some days the prices on exchanges have been more than the OTC weighted average price.

Annexure-I: List of traders who have undertaken contracts in April 2014*

Trader	31 st Mar – 6 th Apr	7 th Apr- 13 th Apr	14 th Apr- 20 th Apr	21 st Apr- 27 th Apr	28 th Apr- 4 th May	Grand Total
NTPC Vidyut Vitran Nigam Ltd	Y(10)	Y(3)	Y(5)	Y(10)	Y(14)	Y(42)
PTC India Ltd	Y(6)	Y(7)	NIL	Y(1)	Y(20)	Y(34)
Tata Power Trading Co Ltd	Y(6)	Y(6)	Y(1)	NIL	Y(5)	Y(18)
Mittal Processors Pvt Ltd	Y(1)	Y(1)	NIL	Y(1)	Y(3)	Y(6)
Adani Enterprise Ltd	Y(1)	Y(3)	NIL	NIL	NIL	Y(4)
Reliance Energy Trading Ltd	NIL	NIL	Y(2)	Y(1)	NIL	Y(3)
GMR Energy Trading Ltd	Y(1)	NIL	NIL	NIL	NIL	Y(1)
Instinct Infra & Power Ltd	NIL	NIL	NIL	Y(1)	NIL	Y(1)
Total	Y(25)	Y(20)	Y(8)	Y(14)	Y(42)	Y(109)

Note 1: Y (): Contracts had been undertaken(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 contract during the reported period. There could be some traders who have reported but did not undertake any contracts.

Annexure-II: Process of Formulation

I. The Scatter Diagram: Comparison of prices of Short Term OTC Contracts with Power Exchange Prices (on Contracted Date)

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 an year) transactions of electricity. Each data-point represents contract sale-price on a particular contract date.

Varied shapes are used to depict contracts for different time-span, e.g. the diamonds are for contracts for upto one week, the squares are for contracts which have been executed for more than one week or upto one month ahead, the triangles represent contracts executed for more than one month or for upto three months and the crosses are for contracts more than three months or up to an year. In the diagram, no distinction has been made among the traders. The black and green 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

The forward curve price points are based on OTC sale prices reported by the traders. For a contract of a full month, the contract price is considered discretely as the price for each day. Finally, each price point of the forward curve represents the weighted average sale prices of electricity based on prices of all contracts executed during the current & the prior reporting periods for electricity to be delivered on the day. (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)

Daily weighted average delivery price of OTC contracts is calculated by considering prices of all OTC contracts including daily, weekly, monthly, more than 3-month & up to one year contracts executed during the current & the prior reporting periods for electricity to be delivered on the 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 as daily weighted average delivery 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 delivery was scheduled for the said dates).

V. The 96 Blocks(24 hours) average prices of the 12 bid areas is being termed as average daily area price. The Power Exchanges' prices used in the report are calculated using following formulas:

$$\text{Average Daily Area Price (₹/kWh)} = (\sum_{i=1}^{96} P(i))/96000$$

Where $P(i)$ is the price for different 15 minute time blocks in a day

VI. With respect to the comparison between the prices of day ahead contracts on Power Exchanges and prices of OTC contracts, following may be noted:

1. Day ahead markets on Power Exchanges are 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 and Power Exchanges contracts should be seen in this light.
2. The comparison should also be seen in the light that the delivery point for day ahead contracts is periphery of regional transmission system in which the grid-connected entity is located whereas the delivery point for OTC contracts may vary from contract to contract. The delivery point may be state or regional periphery or any other delivery point as per the contract executed.