

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

[An analysis of all weekly reports (reporting period 29th October – 2nd December 2012) received from licensed-traders for the month of November 2012]



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Prepared on 9th December 2012

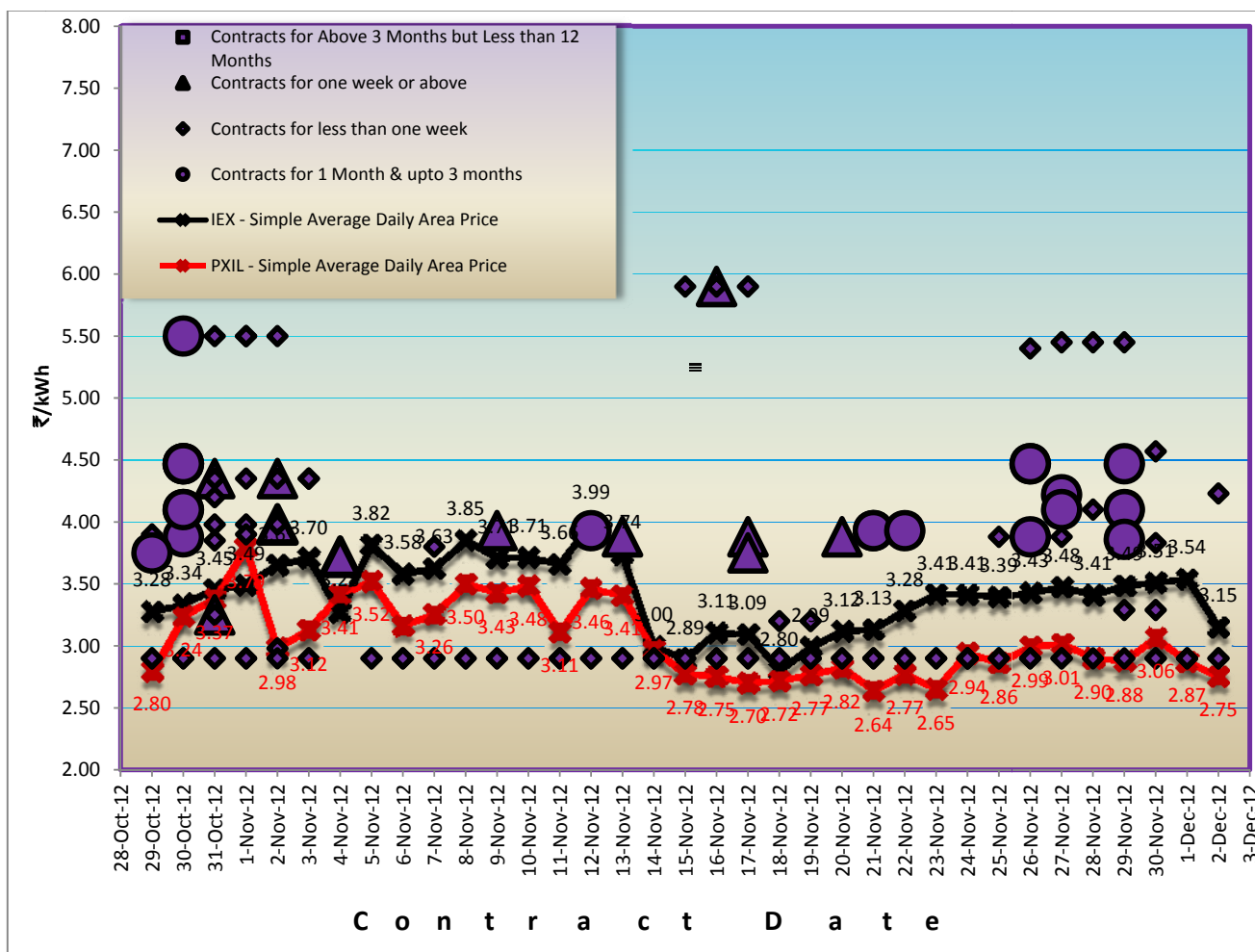
Snapshot for November 2012

- ✓ The reported short-term contract volume for the month of November 2012 (analysis of five weeks) was 3699.79MUs whereas the same was 2263.47 MUs for the month of October 2012 (analysis of four weeks). There is a 63% increase in reported contract-volume.
- ✓ 50% of total volume has been contracted at above price of ₹4/kWh as compared to 76% during October 2012.
- ✓ Total number of contracts (including Swap & Banking) in November 2012 (analysis of five weeks) was 154 by 6 traders whereas in October 2012 (analysis of four weeks) was 123 by 4.

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 29th October – 2nd December 2012. As seen in scatter diagram, most of the contracts were concentrated in the 1st and 5th week of the reported period and the overall price was in the range of ₹2.90/kWh - ₹5.90/kWh. There were 108 contracts for less than a week and 33 contracts for a month & above period of power delivery. However there was no contract for above three months period of power delivery.

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		
29 th Oct.- 4 th Nov.	2.90	5.50	4.25	1112.57
5 th -11 th Nov.	2.90	3.93	3.77	132.54
12 th -18 th Nov.	2.90	5.90	4.63	54.28
19 th -25 th Nov.	2.90	5.45	3.86	178.13
26 th Nov.-2 nd Dec.	2.90	5.45	4.22	826.59
Total				2304.11

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

(Includes Term Ahead Contracts at Power Exchanges)

Contract Date (2012)	29th October	30th October	31st October	1st November	2nd November	3rd November	4th November	5th November	6th November	7th November	8th November	9th November	10th November	11th November	12th November	13th November	14th November	15th November	16th November	17th November	18th November
IEX*(₹/kWh)	3.28	3.34	3.45	3.49	3.65	3.70	3.28	3.82	3.58	3.63	3.85	3.71	3.71	3.66	3.99	3.74	3.00	2.89	3.11	3.09	2.80
PXIL*(₹/kWh)	2.80	3.24	3.37	3.79	2.98	3.12	3.41	3.52	3.17	3.26	3.50	3.43	3.48	3.11	3.46	3.41	2.97	2.78	2.75	2.70	2.72
OTC Contracts** (₹/kWh)	4.25 (29th October - 4th November)							3.77 (5th - 11th November)							4.63 (12th - 18th November)						

Contract Date (2012)	19th November	20th November	21st November	22nd November	23rd November	24th November	25th November	26th November	27th November	28th November	29th November	30th November	1st December	2nd December
IEX*(₹/kWh)	2.99	3.12	3.13	3.28	3.41	3.41	3.39	3.43	3.48	3.41	3.49	3.51	3.54	3.15
PXIL*(₹/kWh)	2.77	2.82	2.64	2.77	2.65	2.94	2.86	2.99	3.01	2.90	2.88	3.06	2.87	2.75
OTC Contracts** (₹/kWh)	3.86 (19th - 25th November)							4.22 (26th November - 2nd December)						

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

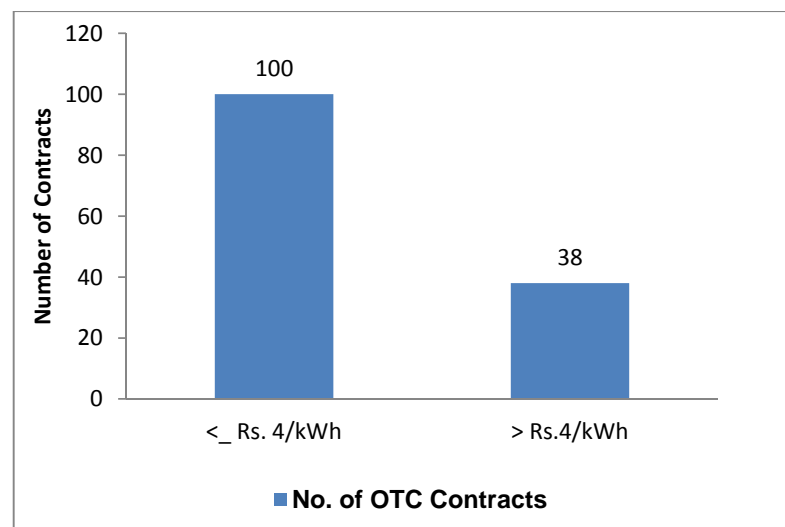
*: Simple Average Area Prices for the Day for all the Bid Areas

** : Weekly Weighted Average Prices for OTC- Contracts

Observations

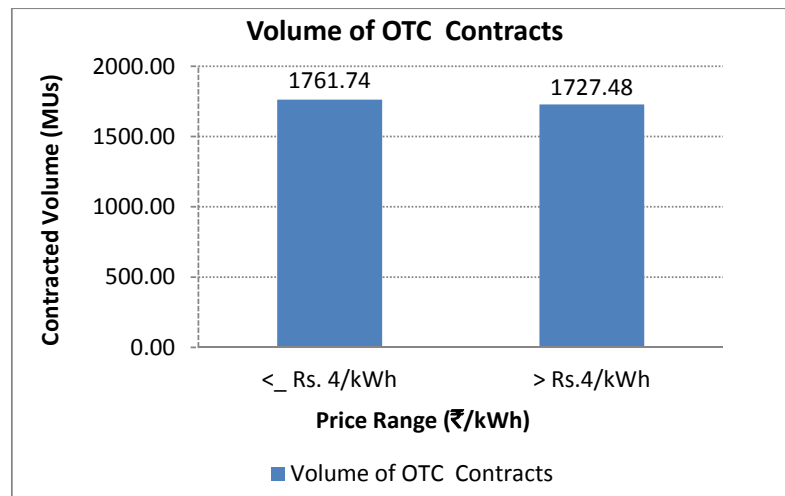
1. It is observed that IEX and PXIL prices were generally below the average OTC contract prices during the reported period. The minimum 24-hour average price in the exchanges during reported period was ₹2.64/kWh (PXIL, 21st November) while that in the OTC market was ₹2.90/kWh (29th October- 2nd December). Maximum 24-hour average price in Day-Ahead market at the exchange reached ₹3.99/kWh (IEX, 12th November) and in OTC Market it was ₹5.90/kWh (15th-16th November) which was a '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, 38 out of totals 108^{*} contracts were entered at above ₹4/kWh. There were a total 138 contracts including swap & banking during the reported period. However, the cumulative volume traded above ₹4/kWh was 1727.48^{*} MUs which is 50% of total OTC contracts for the reported period 29th October – 2nd December 2012.

Chart 2: Frequency Distribution of Number of OTC Contracts



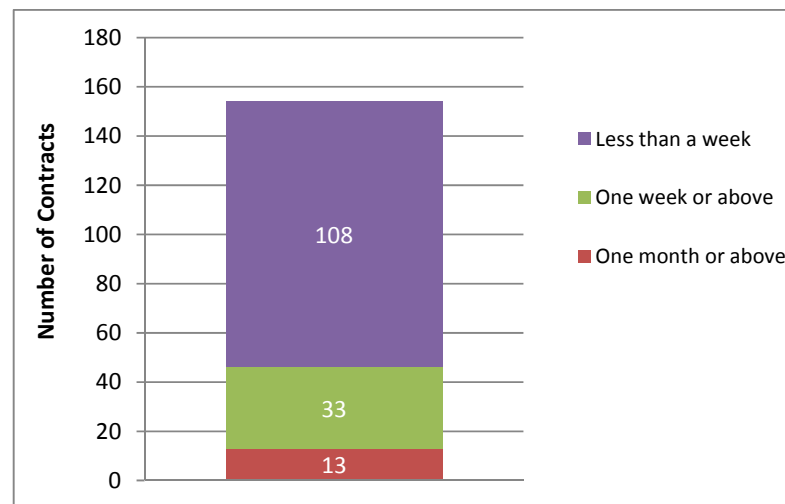
^{*} Excluding swap /banking contracts since they do not have any sale price.

Chart 3: Frequency Distribution of Number of OTC Contracts



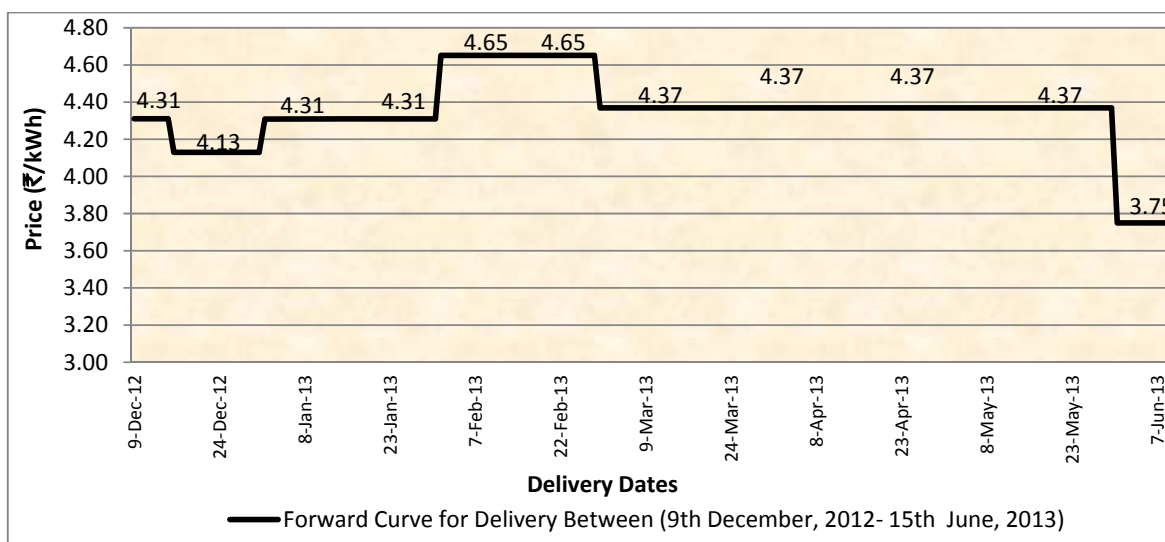
Following chart shows the number of contracts reported during November 2012, categorized according to the period of power supply.

Chart 4: Number of Contracts Reported in November 2012



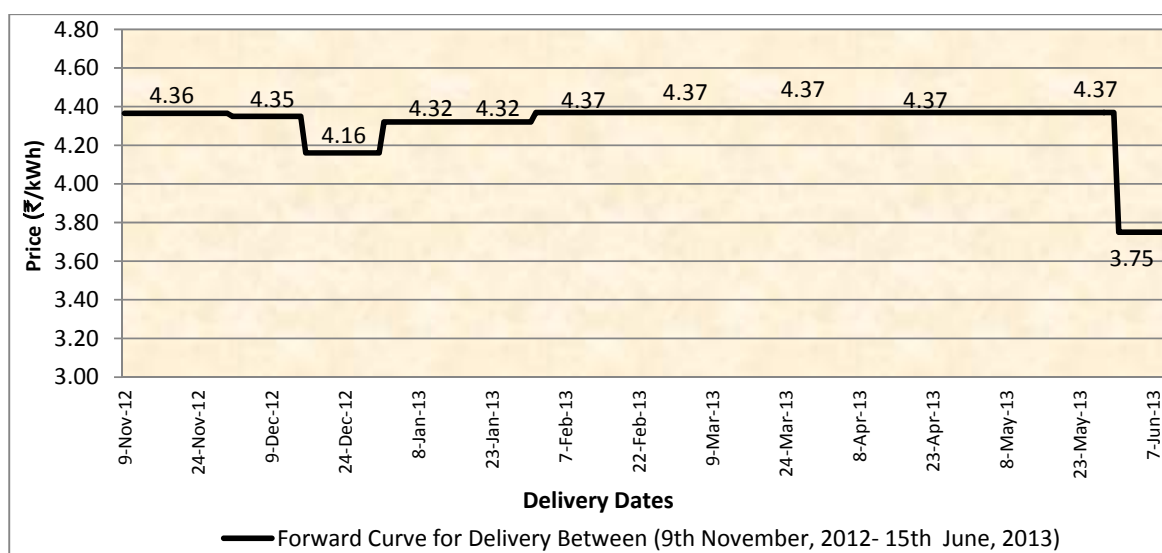
II. Forward Curve of Power Prices

Chart 5: Forward Curve for the period December 2012 - June 2013 as on 9th December 2012



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 December 2012 - 15th June 2013, i.e. upto six months ahead period of power supply. This forward curve is as on 9th December 2012 but based on 138 contract prices reported by trader's upto 2nd December 2012.

Chart 5.1: Chart 5: Forward Curve for the period October 2012 - June 2013 as on 9th November 2012



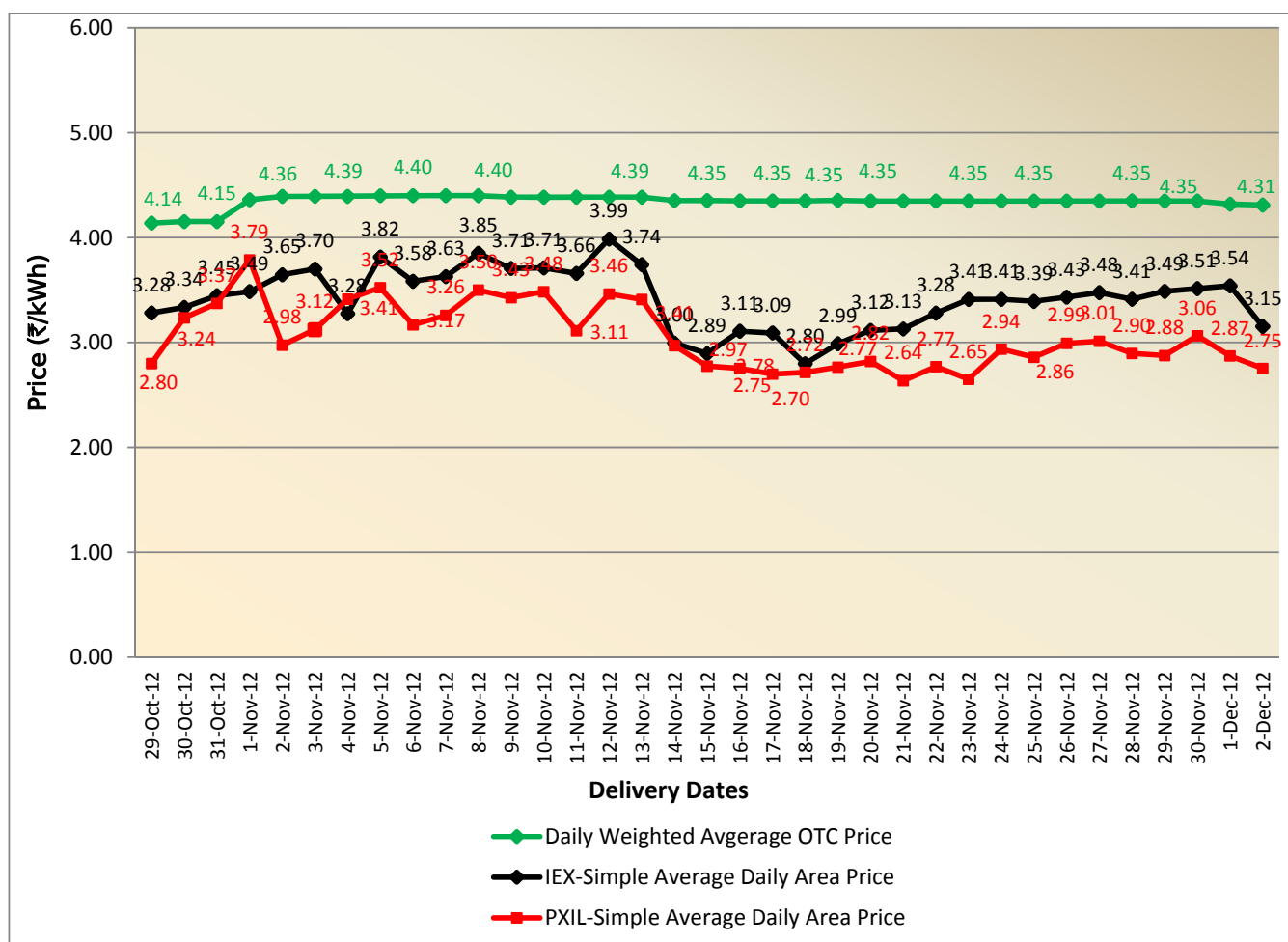
Observations

1. The Forward Curve for the next six months period i.e. December 2012 - June 2013 as on 9th December 2012 have fluctuated in the range of ₹3.75 - ₹4.65/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 December 2012 has been formulated for a period of six months based on reported contracts (for 9th December 2012 - 15th June 2013 period of power delivery). The numbers of contracts reported for the initial months (December and January 2013) were higher (18 and 15 contracts respectively) than those of later months i.e. February 2013 to June 2013 (4 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 4 & Chart 4.1) gives us a picture of expected delivery price for November 2012 - June 2013 as on 9th November (Chart 4.1) and as on 9th December (Chart 4). 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 increase from ₹4.37/kWh (in November) to ₹4.65/kWh (in December).

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 5: Comparison OTC Deliveries and Power Exchange Spot Delivery Price for November 2012



Observations

1. The prices in power exchanges have fluctuated over a range of ₹2.64 to ₹3.99/ kWh during the month. However the OTC - contracts delivery prices have been more or less stable in the range of ₹4.14 to ₹4.40/ kWh. The power exchanges prices were 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 29th October - 2nd December 2012***

Sr.No.	Name of Licensee	29 th Oct. - 4 th Nov.	5 th -11 th Nov.	12 th -18 th Nov.	19 th -25 th Nov.	26 th Nov.- 2 nd Dec.
1	PTC India Ltd.	Y(30)	Y(14)	Y(19)	Y(16)	Y(19)
2	NTPC Vidyut Vyapar Nigam Ltd.	Y(11)	Y(3)	Y(11)	Y(8)	Y(12)
3	Adani Enterprises Ltd.	Y(3)	NIL	Y(2)	NIL	NIL
4	Reliance Energy Trading (P) Ltd	NIL	NIL	NIL	Y(1)	NIL
5	GMR Energy Trading Ltd	NIL	NIL	NIL	NIL	Y(3)
6	National Energy Trading & Services Ltd	Y(1)	NIL	NIL	NIL	Y(1)
Total No. of Contracts		45	17	32	25	35
Total for month for all traders		154				

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