WEEKLY REPORTING OF OTC CONTRACTS: MONTHLY ANALYSIS

(JULY 2012)

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

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Prepared on 9th August 2012

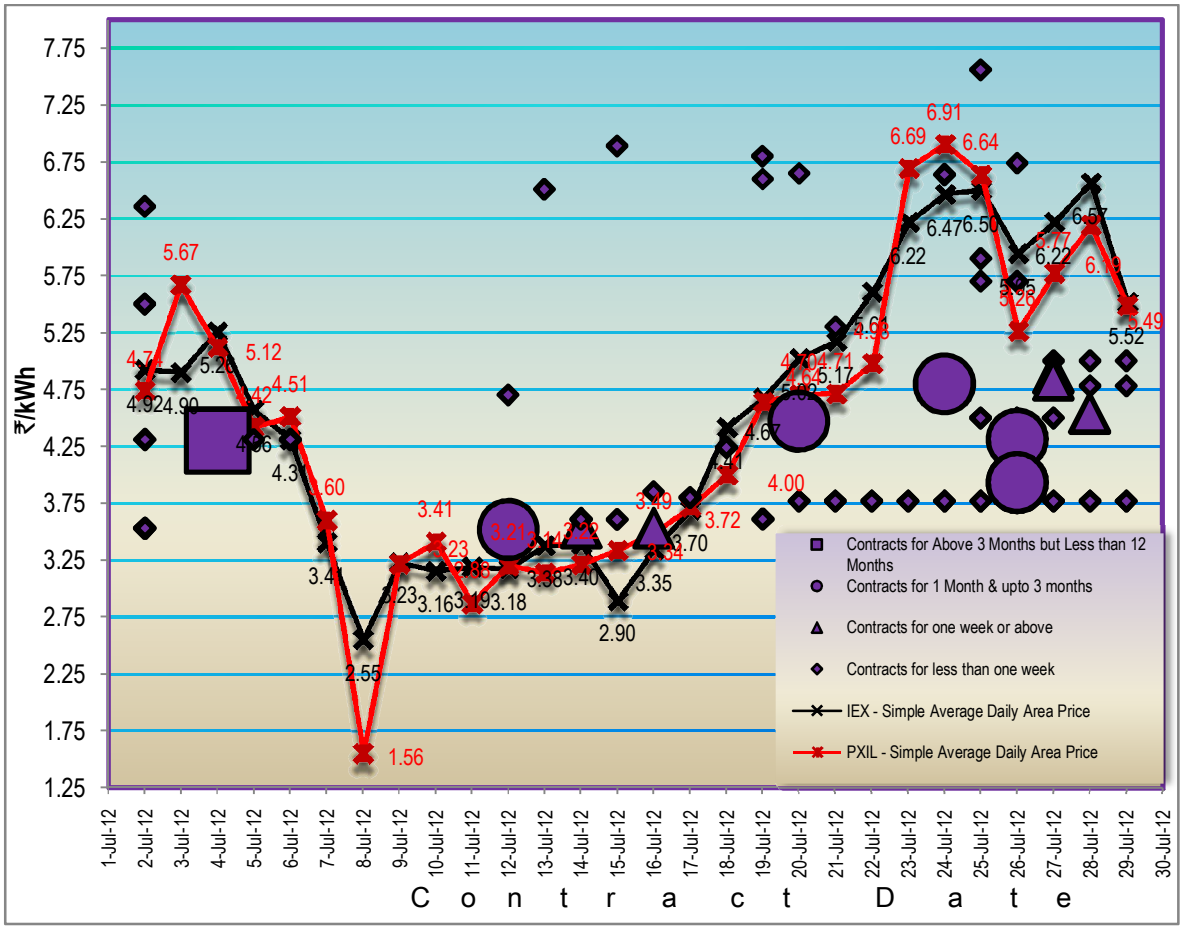
Snapshot for July 2012

- ✓ The reported short-term contract volume for the month of July 2012 (analysis of four weeks) was 636.55 MUs whereas the same was 2234.09 MUs for the month of June 2012 (analysis of four weeks). There is a 72% decrease in reported contract-volume.
- ✓ 66% of total volume has been contracted at above price of ₹4/kWh as compared to 36% during June 2012.
- ✓ Total number of contracts (including Swap & Banking) in July (analysis of four weeks) was 120 by 7 traders whereas in June (analysis of four weeks) it was 152 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 2nd - 29th July 2012. As is seen from the scatter diagram, most of the contracts were concentrated in the last week of the reported period and the overall price was in a range of ₹3.52/kWh to ₹7.56/kWh. There were 100 contracts for less than a week and 11 contracts for a month & above 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 and no transmission 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		
2nd - 8th July	3.53	6.36	4.58	35.86
9th - 15th July	3.52	6.89	3.62	14.35
16th - 22nd July	3.53	6.80	4.43	84.15
23rd - 29th July	3.77	7.56	4.43	336.42
Total				**470.78**

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

(Includes Term Ahead Contracts at Power Exchanges)

Contract Date (2012)	2nd July	3rd July	4th July	5th July	6th July	7th July	8th July	9th July	10th July	11th July	12th July	13th July	14th July	15th July
IEX* (₹ / kWh)	4.92	4.90	5.26	4.56	4.31	3.41	2.55	3.23	3.16	3.19	3.18	3.38	3.40	2.90
PXIL* ₹ / kWh)	4.74	5.67	5.12	4.42	4.51	3.60	1.56	3.23	3.41	2.88	3.21	3.14	3.22	3.34
OTC Contracts** (₹/ kWh)	4.58							3.62						
	2nd - 8th July							9th - 15th July						

Contract Date (2012)	16th July	17th July	18th July	19th July	20th July	21st July	22nd July	23rd July	24th July	25th July	26th July	27th July	28th July	29th July
IEX* (₹ / kWh)	3.35	3.70	4.41	4.67	5.02	5.17	5.61	6.22	6.47	6.50	5.95	6.22	6.57	5.52
PXIL* (₹ / kWh)	3.49	3.72	4.00	4.64	4.70	4.71	4.98	6.69	6.91	6.64	5.26	5.77	6.19	5.49
OTC Contracts** (₹/ kWh)	4.43							4.43						
	16th - 22nd July							23rd - 29th July						

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*

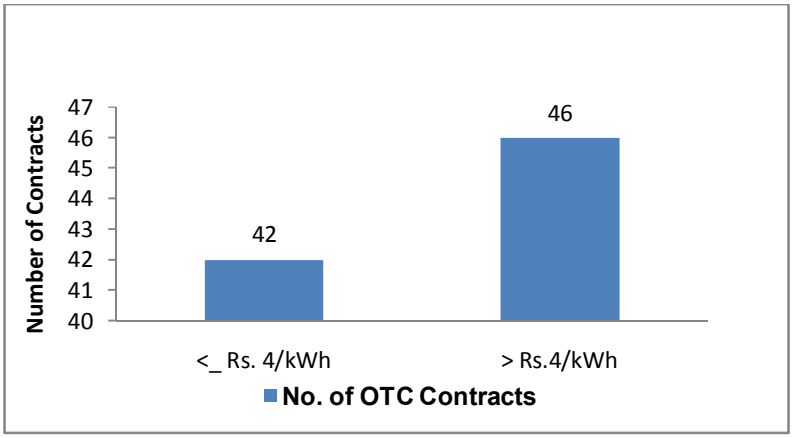
Observations

1. The prices on power exchange across all the regions started increasing from mid July. Similarly, OTC - contracts price signed during 1st and 2nd week were in the range ₹3.52-₹6.89 /kWh which increased to ₹3.77-₹7.56/kWh during 3rd and 4th week. The increase in prices was due to less than expected rainfall. It may be noted that Power Exchange is a day ahead market with standardized contracts and no transmission corridor assurance while the OTC Contracts are weekly/monthly contracts with flexibility of customization and transmission corridor assurance. The price comparison of OTC - Contracts and Power Exchanges should be seen in this light.

2. The minimum price in the exchanges during reported period was ₹1.56/kWh (PXIL, 8th July) while that in the OTC market was ₹3.52/kWh (12th July 2012). Maximum price in Day-Ahead market at the exchange reached ₹6.91/kWh (PXIL, 24th July) and in OTC Market it was ₹7.56 (25th July) which was an 'Evening Peak' power contract.

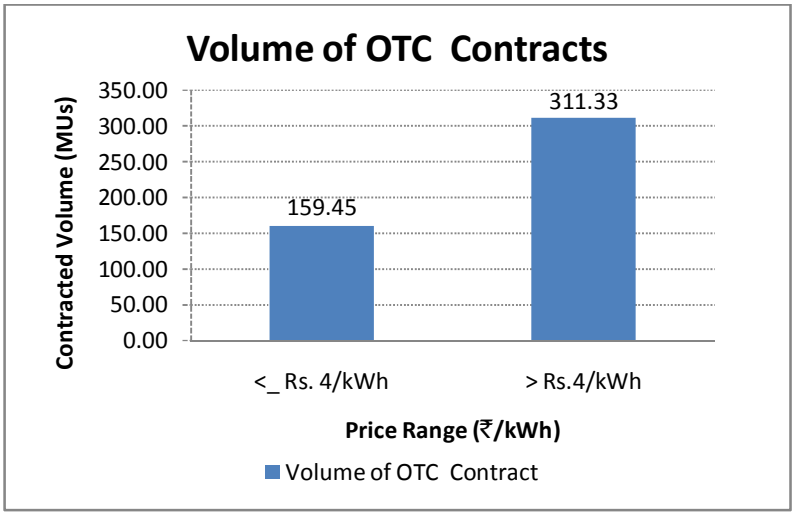
3. As far as the number of contracts is concerned, 46 out of totals 88♣ contracts were entered at above ₹4/kWh. There were a total 120 contracts including swap & banking during the month. However, the cumulative volume traded above ₹4/kWh was 313.33♣ MUs which is 66% of total OTC contracts for the reported period 2nd – 29th July 2012.

Chart 2: Frequency Distribution of Number of OTC Contracts



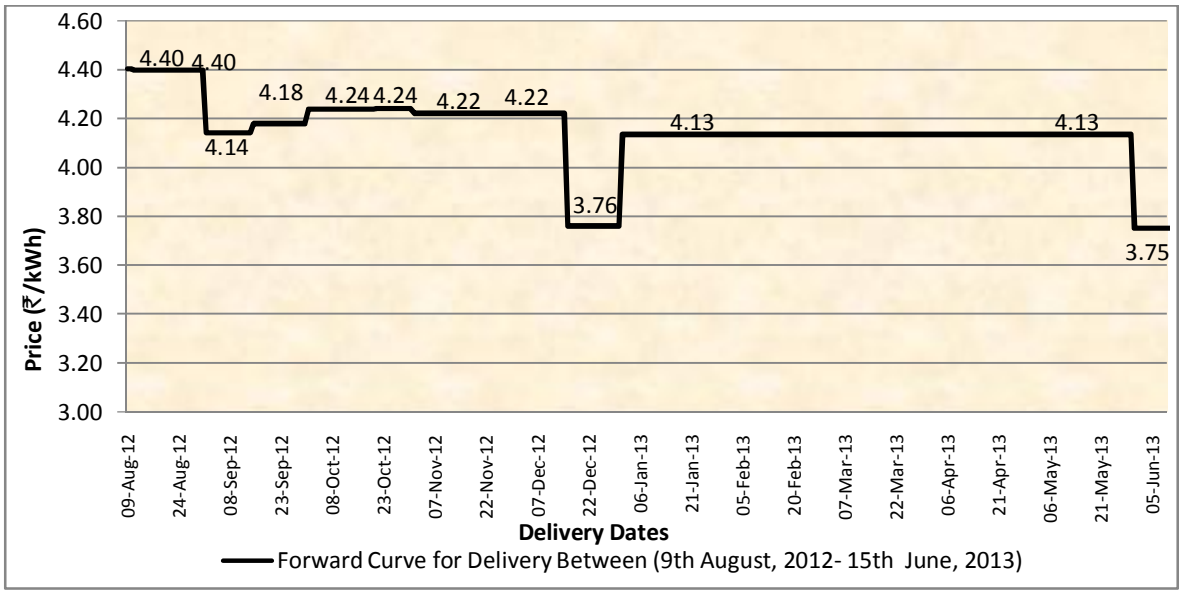
♣ *Excluding swap/banking contracts since they do not have any sale price.*

Chart 3: Cumulative Volume Traded below and above ₹4/kWh 2nd – 29th July 2012



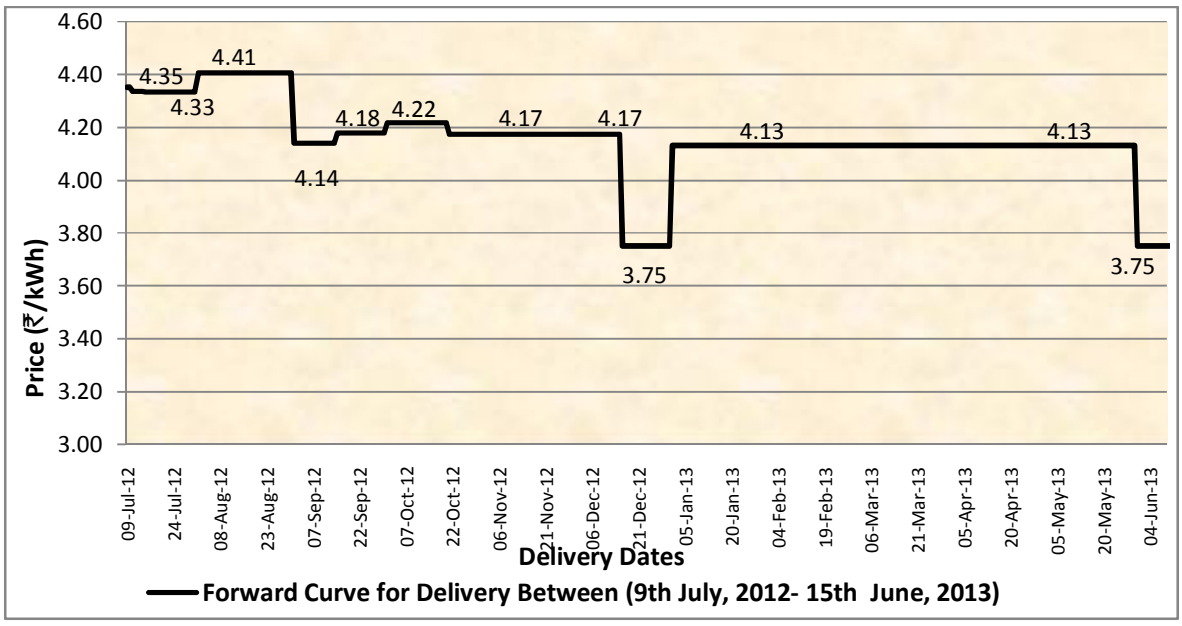
II. Forward Curve of Power Prices

Chart 4: Forward Curve for the period August 2012 - June 2013 as on 9th August 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 August 2012 - 15th June 2013, i.e. ten months ahead period of power supply. This forward curve is as on 9th August 2012 but based on 88 contract prices reported by trader's upto 29th July 2012.

Chart 4.1: Forward Curve for the period July 2012 - June 2013 as on 9th July 2012



Observations

1. The Forward Curve for the next ten months period i.e. August 2012 - June 2013 as on 9th August 2012 is generally flat in the range of ₹3.75 - ₹4.40/kWh. Thereafter in June 2013 the curve drops down since certain higher priced contracts are getting completed in May 2013.

2. The Forward Curve as on 9th August 2012 has been formulated for a period of ten months based on reported contracts (for 9th July 2012 - 15th June 2013 period of power delivery). The numbers of contracts reported for the initial months (August and September 2012) were higher (25 and 10 contracts respectively) than those of later months i.e. November 2012 to June 2013 (3 and 1 contracts respectively). It is in alignment with the general trend that liquidity is higher for nearer months compared to farther months.

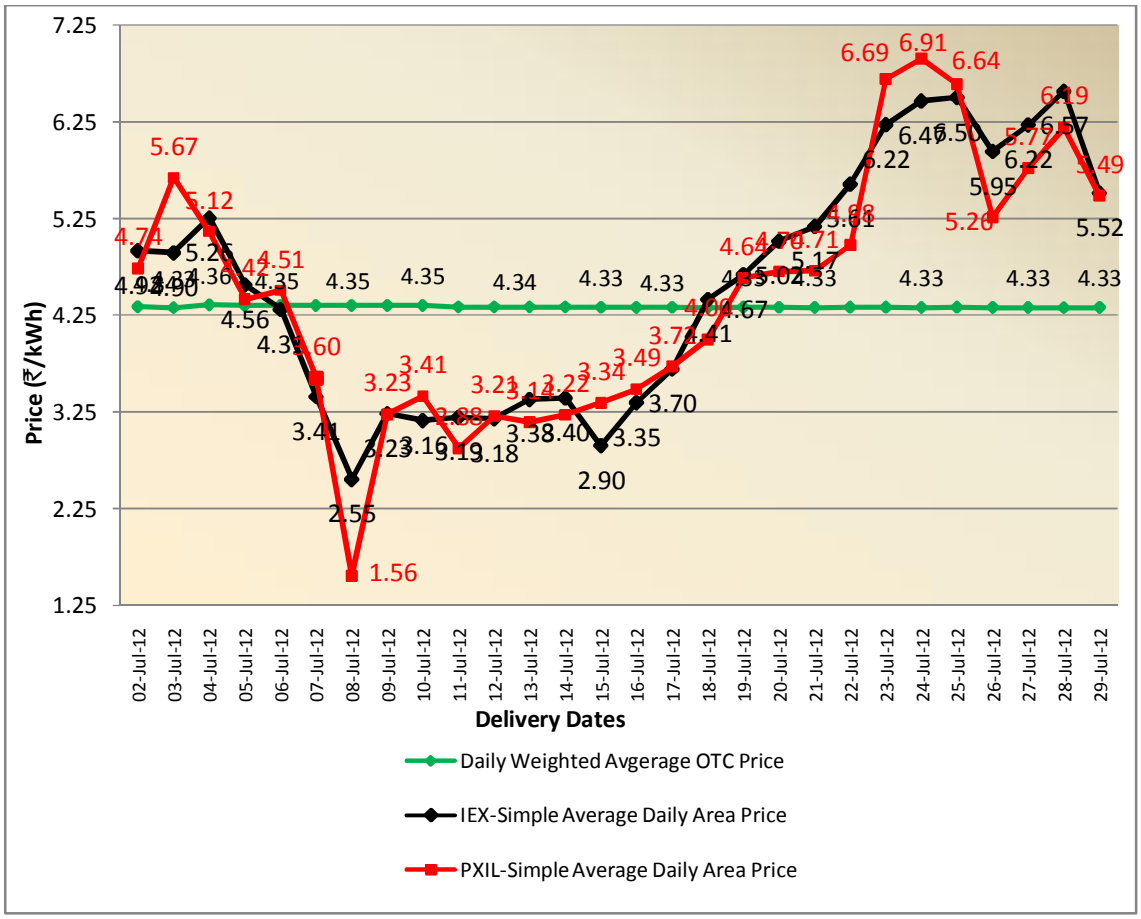
3. A comparison of forward curves (Chart 4 & Chart 4.1) gives us a picture of expected delivery price for July 2012 - June 2013 as on 9th July (Chart 4.1) and as on 9th August (Chart 4). It is possible that the prices for the same delivery period are different during different periods of time when contracts were being signed. For instance prices for expected delivery for November 2012 have increase from ₹4.17/kWh (in June) to ₹4.22/kWh (in July) though marginally.

4. The forward curve as on 9th July did not anticipate high July prices as the price curve is flat. The sudden spurt in spot price from mid of July has happened due to less than expected rainfall.

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.

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



Observations

1. The prices in power exchanges have fluctuated over a wide range (₹ 1.56 to ₹6.91/ kWh) over the month. The OTC - Contracts signed in 1st and 2nd week of July were at lower prices than those in 3rd and 4th week though the weighted average prices were around ₹4.30/kWh. It may be noted that Power Exchange is a day ahead market with standardized contracts with no transmission corridor assurance while the OTC - Contracts are weekly/monthly contracts with flexibility of customization and transmission corridor assurance. The price comparison of OTC- Contracts and Power Exchanges should be seen in this light.

Overall Comparative View between June and July 2012

Following table shows the number of contracts reported during June and July 2012 categorized according to the period of power supply.

Table 3: Number of Contracts Reported in June and July 2012[ψ]

	June (four weeks)	July (four weeks)
Above three months and upto 12 months	0	1
One month or above	26	10
One week or above	12	9
Less than a week	114	100
Total Contracts	**152**	**120**
Total Volume (Million Units)	**2234.09**	**636.55**

From the above table it is clear that the total numbers of contracts for power deliveries for the category one month or above; were lesser in July (11 contracts) than in June (26 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 4: Maximum and Minimum Prices - A Comparative View ₹/ kWh (Dates)

	June 2012 (4th June - 1st July)		July 2012 (2nd - 29th July)	
	Maximum	Minimum	Maximum	Minimum
IEX	7.03 (14th June)	2.91 (21st June)	6.57 (28th July)	2.55 (8th July)
PXIL	6.76 (14th June)	3.00 (17th June)	6.91 (24th July)	1.56 (8th July)
OTC Contracts	6.15 (13th June)	3.53 (30th June)	7.56 (25th July)	3.52 (12th July)

Overall Inferences

1. From Chart-1 i.e. Comparison of prices of Short-term OTC Contracts with Power Exchange Prices (on Contracted Date), it is observed that the prices on power exchange across all the regions started increasing from mid July. Similarly, OTC - contracts price signed during 1st and 2nd week were in the range ₹3.52-₹6.89 /kWh which increased to ₹3.77-₹7.56/kWh during 3rd and 4th week. The increase in prices was due to less than expected rainfall.

Annexure-I

Table 5: List of Trading Licensees who have undertaken Contracts in the period 2nd – 29th July 2012*

Sr.No.	Name of Licensee	2nd - 8th July	9th - 15th July	16th - 22nd July	23rd - 29th July
1	PTC India Ltd.	Y(10)	Y(9)	Y(10)	Y(29)
2	NTPC Vidyut Vyapar Nigam Ltd.	Y(8)	Y(3)	Y(9)	Y(15)
3	GMR Energy Trading Ltd.	Y(1)	Y(5)	Y(6)	Y(1)
4	JSW Power Trading Company Ltd.	Y(3)	Y(3)	Y(4)	NIL
5	National Energy Trading & Services Ltd	Y(2)	NR	NIL	NIL
6	RPG Power Trading Company Ltd.	NIL	Y(1)	NIL	NIL
7	Shree Cement Ltd.	NIL	NIL	NIL	Y(1)
Total No. of Contracts		24	21	29	46
Total for month for all traders		120			

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 hour) 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:

Hourly Average (Hn) = (A1+ A2+ E1+E2+N1+N2+N3+W1+W2+W3+S1+S2) /12 for Hour 1 to 24

Simple Average Area Price = (H1 + H2 +... +H23+ H24) / 24 for the full day.