

**MONTHLY REPORT ON
SHORT-TERM TRANSACTIONS OF ELECTRICITY
(May 2011)**

Introduction

A well-functioning electricity market requires an effective market monitoring process. As part of the market monitoring process, the monthly report on short-term transactions of electricity, is being prepared and posted on the website of CERC since August 2008. In this context, “short-term transactions of electricity” means the contracts of less than one year period for electricity transacted through Inter-State Trading Licensees and directly by the Distribution Licensees, Power Exchanges (Indian Energy Exchange Ltd (IEX) and Power Exchange India Ltd (PXIL)), and Unscheduled Interchange (UI). The objectives of the report are: (i) to observe the trends in volume and price of the short-term transactions of electricity; (ii) to analyse competition among the market players; and (iii) to disclose/disseminate all relevant market information.

In the present monthly report, two changes have been made as under:

- (a) Till April 2011 monthly report, the terminology being used for volume of electricity transacted through power exchanges was Market Clearing Volume (MCV); MCV being the scheduled volume of electricity of all the bid areas taken together. From May 2011 monthly report, however, in place of MCV, terminology used will be Area Clearing Volume (ACV).
- (b) Till April 2011 monthly report, Market Clearing Price (MCP) used to be reported as the price of electricity transacted through power exchanges; MCP being the market clearing price discovered in the market before congestion. From May 2011 monthly report, however, in place of MCP, Area Clearing Price (ACP) will be reported as the price of electricity transacted through power exchanges. ACP being the weighted average price of the scheduled volumes of all the bid areas taken together. This change is being made as weighted average ACP is a better reflection of the actual price of electricity transacted through power exchanges.

The analysis of the report for the month of May 2011 is as under:

I: Volume of Short-term Transactions of Electricity

During the Month of May 2011, total electricity generation excluding generation from renewable and captive power plants in India was 75111.16 MUs (Table-1).

Of the total electricity generation, 7861.59 MUs (10.47%) were transacted through short-term, comprising of 3906.62 MUs (5.20%) through Bilateral (through traders and term-ahead contracts on Power Exchanges and directly between distribution companies), followed by 2646.72 MUs (3.52%) through UI and 1308.26 MUs (1.74%) through day ahead collective transactions on Power Exchanges (IEX and PXIL) (Table-1 & Chart-2).

Of the total short-term transactions, Bilateral constitute 49.69% (36.32% through traders and term-ahead contracts on Power Exchanges and 13.37% directly between distribution companies) followed by 33.67% through UI and 16.64% through day ahead collective transactions on Power Exchanges (Table-1& Chart-1). Daily volume of short-term transactions is shown in Chart-3.

The percentage share of electricity traded by each trading licensee in the total volume of electricity traded by all trading licensees is provided in Table-2 & Chart-4. The trading licensees are undertaking electricity transactions through bilateral and through power exchanges. Here the volume of electricity transacted by the trading licensees includes bilateral transactions and the transactions undertaken through power exchanges. There are 39 trading licensees as on 31.5.2011, of which only 15 have engaged in trading during May 2011. Top 5 trading licenses had a share of 85.64% in the total volume traded by all the licensees.

Herfindahl-Hirschman Index (HHI) has been used for measuring the competition among the trading licensees. Increases in the HHI generally indicate a decrease in competition and an increase of market power, whereas decreases indicate the opposite. A HHI above 0.25 indicates high concentration. The HHI computed for volume of electricity traded by trading licensees was 0.2173 for the month of May 2011, which indicates moderate concentration of market power (Table-2).

The volume of electricity transacted through IEX and PXIL in the day ahead market was 1159.43 MUs and 148.82 MUs respectively. The volume of total Buy bids and Sale bids was 1513.49 MUs and 2119.68 MUs respectively in IEX and 207.92 MUs and 448.47 MUs respectively in PXIL. The gap between the volume of buy bids and sale bids placed through power exchanges shows that there was less demand in IEX (0.71 times) and in PXIL (0.46 times) when compared with the supply offered through these exchanges.

The volume of electricity transacted in term-ahead market through weekly contracts of power exchanges was 1.41 MU in IEX (Table-5A) and 0.62 MU in PXIL (Table-5B).

II: Price of Short-term Transactions of Electricity

(1) *Price of electricity transacted through Traders:* Weighted average sale price has been computed for the electricity transacted through traders and it was ₹4.49/kWh. The weighted average sale price also computed for the transactions during Round the clock (RTC), Peak and Off-Peak periods separately and the sale price was ₹4.52/kWh, ₹5.02/kWh and ₹4.22/kWh respectively. Minimum and Maximum sale price was ₹2.75/kWh and ₹8.04/kWh respectively (Table-3 & 4).

(2) *Price of electricity transacted Through Power Exchange:* The Minimum, Maximum and Weighted Average Price have been computed for the volume transacted through IEX and PXIL separately. The Minimum, Maximum and Weighted Average Price was ₹1.80/kWh, ₹11.00/kWh and ₹2.96/kWh respectively in IEX and ₹0.10/kWh, ₹9.51/kWh and ₹3.03/kWh respectively in PXIL (Table-5).

The weighted average price of electricity transacted in term-ahead market through the weekly contracts of power exchanges was ₹7.50/kWh in IEX (Table-5A) and ₹7.50/kWh in PXIL (Table-5B).

(3) *Price of electricity transacted Through UI:* All-India UI price has been computed for NEW Grid and SR Grid separately. The average UI price was ₹2.86/kWh in the NEW Grid and ₹3.82/kWh in the SR Grid. Minimum and Maximum price of UI was ₹0.00/kWh and ₹17.46/kWh respectively in the New Grid and ₹0.00/kWh and ₹17.46/kWh respectively in the SR Grid (Table-6).

The price of electricity transacted through trading licensees, power exchanges and UI and its comparison is shown in Chart-5 & 6.

III: Volume of Short-term Transactions of Electricity (Regional Entity¹-Wise)

Of the total bilateral transactions, top 5 regional entities selling 58% of the volume are Jindal Power Ltd, Chattisgarh, Himachal Pradesh, Orissa and Jammu & Kashmir. Top 5 regional entities purchasing 64% of the volume are Uttar Pradesh, Tamil Nadu, Maharashtra, Delhi and Andhra Pradesh (Table-7 & 8).

Of the total Power Exchange transactions, top 5 regional entities selling 71% of the volume are Gujarat, Delhi, Himachal Pradesh, Lanko Amarkantak and Karnataka. Top 5

¹ In case of a state, the entities which are “selling” also include generators connected to state grid and the entities which are “buying” also include open access consumers.

regional entities purchasing 87% of the volume are Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and Gujarat (Table-9 & 10).

Of the total UI transactions, top 5 regional entities underdrawing 46% of the volume are Delhi, Gujarat, Uttar Pradesh, Punjab and Andhra Pradesh. Top 5 regional entities overdrawing 60% of the volume are Haryana, Maharashtra, Rajasthan, Tamil Nadu and Uttar Pradesh (Table-11 & 12).

Regional entity-wise total volume of net short-term transactions of electricity i.e. volume of net transactions through bilateral, power exchange and UI is shown in Table-13. Top 5 regional entities selling electricity are Gujarat, Himachal Pradesh, Jindal Power Ltd, Orissa and Jammu & Kashmir and top 5 regional entities purchasing electricity are Uttar Pradesh, Tamil Nadu, Maharashtra, Punjab and Haryana.

IV: Congestion² on Inter-state Transmission Corridor for Day-Ahead Market on Power Exchanges

Power Exchanges use a price discovery mechanism in which the aggregate demand and supply are matched to arrive at an unconstrained market price and volume. This step assumes that there is no congestion in the inter-state transmission system between different regions. However, in reality, the system operator, NLDC in coordination with RLDCs, limits the flow due to congestion in the inter-state transmission system. In such a situation, Power Exchanges adopt a mechanism called “Market Splitting”³.

In the month of May 2011, congestion occurred in both the power exchanges, the details of which are shown in Table-14. The volume of electricity that could not be cleared due to congestion and could not be transacted through power exchanges is the difference

² “Congestion” means a situation where the demand for transmission capacity exceeds the available transfer capability

³ “ Market Splitting” is a mechanism adopted by Power Exchange where the market is split in the event of transmission congestion, into predetermined (by NLDC) bid areas or zones, which are cleared individually at their respective area prices such that the energy balance in every bid area is reached based upon the demand and supply in individual bid areas and using the available transmission corridor capacity between various bid areas simultaneously”

As a result of this market splitting the price of electricity in the importing region, where demand for electricity is more than supply, becomes relatively higher than the price of electricity in the exporting region.

of unconstrained cleared volume (volume of electricity that would have been scheduled, had there been no congestion) and actual cleared volume.

During the month, the volume of electricity that could not be cleared due to congestion was about 2% and 7% of the actual cleared volume in IEX and PXIL, respectively. Although the congestion occurred in power exchanges, in percentage of time terms it was around 28% in IEX and 36% in PXIL.

V: Inferences:

- The percentage of short-term transactions of electricity to total electricity generation was 10.47%.
- Of the total short-term transactions of electricity, 49.69% transacted through bilateral (through traders and term ahead contracts on power exchanges and directly by distribution companies) followed by 33.67% through UI and 16.64% through Power Exchanges.
- Top 5 trading licenses are having share of 85.64% in the total volume traded by all the trading licensees.
- The Herfindahl Hirschman Index computed for volume of electricity traded by trading licensees was 0.2173 indicates moderate concentration of market power.
- The price of electricity transacted through Trading Licensees (₹4.49/kWh) was relatively high when compared with the price of electricity transacted through Power Exchanges (₹2.96/kWh in IEX and ₹3.03/kWh in PXIL). The price of electricity transacted through UI was ₹2.86/kWh in the NEW Grid and ₹3.82/kWh in the SR Grid.
- The gap between the volume of sale bids and buy bids placed through power exchanges shows that there was less demand in IEX (1:0.71) and in PXIL (1:0.46) when compared with the supply offered through these exchanges.
- Top 5 regional entities selling electricity are Gujarat, Himachal Pradesh, Jindal Power Ltd, Orissa and Jammu & Kashmir and top 5 regional entities purchasing electricity are Uttar Pradesh, Tamil Nadu, Maharashtra, Punjab and Haryana.
- The volume of electricity that could not be cleared due to congestion was about 2% and 7% of the actual cleared volume in IEX and PXIL, respectively. In percentage of time terms, congestion occurred 28% of the time (211 hrs in the month) in IEX and 36% of the time (266 hrs in the month) in PXIL.

VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (ALL INDIA) (MUs)						Total Electricity Generation (MUs) as given at CEA Website*
Month: May 2011						
Date	Bilateral		Power Exchange (Area Clearing Volume# of day ahead market)		Unscheduled Interchange (Over Drawl+Under Generation)	
	Through Traders and PXs**	Direct	IEX	PXI		
1-May-11	89.04	39.18	34.70	3.23	88.05	2322.21
2-May-11	87.60	40.46	27.49	1.34	92.25	2387.26
3-May-11	89.24	41.96	32.39	3.86	79.20	2440.10
4-May-11	91.67	37.23	34.39	4.63	74.09	2437.76
5-May-11	90.68	37.23	38.09	3.61	84.05	2456.22
6-May-11	85.56	37.35	34.17	6.93	80.84	2458.30
7-May-11	94.22	39.56	39.74	4.89	81.33	2461.88
8-May-11	92.39	38.66	40.29	4.64	72.97	2406.06
9-May-11	95.56	39.57	37.11	4.72	72.18	2488.63
10-May-11	99.18	39.57	35.33	4.55	79.23	2487.19
11-May-11	86.40	39.68	36.80	4.63	71.78	2503.09
12-May-11	90.52	39.15	35.84	4.53	75.67	2513.43
13-May-11	91.49	39.15	31.91	5.38	84.76	2490.67
14-May-11	90.92	39.15	37.36	4.13	75.64	2485.64
15-May-11	88.83	36.79	33.76	3.76	82.50	2442.79
16-May-11	91.55	34.55	43.36	4.75	69.21	2525.66
17-May-11	91.79	31.78	44.68	8.01	69.67	2525.35
18-May-11	91.67	31.96	41.49	5.95	90.04	2514.27
19-May-11	93.64	31.96	44.14	8.62	105.18	2431.86
20-May-11	93.59	34.36	46.65	6.21	95.45	2373.47
21-May-11	89.13	35.58	40.46	4.56	110.57	2299.92
22-May-11	87.82	23.35	29.80	2.82	115.10	2181.99
23-May-11	89.38	24.36	32.69	4.19	93.66	2314.43
24-May-11	88.82	24.36	35.03	2.83	73.94	2430.86
25-May-11	91.91	24.36	37.11	4.21	86.80	2440.29
26-May-11	94.37	23.90	38.25	7.10	94.33	2398.09
27-May-11	96.74	23.90	39.98	6.76	87.59	2377.31
28-May-11	99.78	27.82	43.23	5.04	87.95	2393.38
29-May-11	97.46	30.88	34.83	4.48	101.58	2343.84
30-May-11	97.28	31.76	38.97	4.67	87.80	2366.40
31-May-11	97.31	31.51	39.39	3.83	83.30	2412.81
Total	2855.53	1051.09	1159.43	148.82	2646.72	75111.16
Source: NLDC						
* Gross Electricity Generation excluding electricity generation from renewable and captive power plants.						
** The volume of bilateral through PXs represents the volume through term-ahead contracts.						
# Area Clearing Volume represents the scheduled volume of all the bid areas taken together.						

PRICE OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (Rs/KWh)												
Month: May 2011												
Market Segment	Day ahead market of IEX			Day ahead market of PXIL			Under Draw/Over Draw from the Grid (UI)					
Date	Minimum ACP	Maximum ACP	Weighted Average*	Minimum ACP	Maximum ACP	Weighted Average*	NEW Grid			SR Grid		
							Minimum Price	Maximum Price	Average Price**	Minimum Price	Maximum Price	Average Price**
1-May-11	2.20	5.00	3.39	2.25	4.10	2.86	0.00	17.46	3.04	0.00	4.03	1.71
2-May-11	2.65	5.25	3.54	2.70	5.25	3.81	0.93	12.22	3.99	0.47	7.32	2.81
3-May-11	2.70	5.25	3.92	0.80	5.00	3.46	0.00	8.26	2.50	0.00	12.22	3.07
4-May-11	2.70	5.00	3.71	2.80	6.00	3.88	0.31	7.32	2.68	0.00	7.32	3.36
5-May-11	2.38	10.00	3.47	2.50	9.00	3.47	0.62	7.79	2.74	0.00	8.26	3.46
6-May-11	2.19	7.50	2.99	2.35	9.00	3.67	0.00	3.72	1.76	0.62	12.22	3.90
7-May-11	2.07	6.50	2.98	2.00	8.50	2.99	0.31	5.91	2.20	0.00	12.22	3.23
8-May-11	2.00	4.03	2.66	2.00	8.00	2.81	0.00	12.22	2.60	0.00	7.79	2.61
9-May-11	2.00	10.00	2.88	2.00	8.00	2.94	0.16	12.22	3.55	0.00	12.22	3.57
10-May-11	2.00	11.00	2.99	2.00	9.51	2.92	0.47	12.22	2.85	0.62	12.22	3.71
11-May-11	1.89	5.00	2.91	0.90	8.50	3.18	0.62	6.85	2.67	0.62	12.22	4.47
12-May-11	1.80	8.50	2.98	0.80	8.00	2.88	0.00	12.22	2.87	0.47	12.22	4.50
13-May-11	2.00	11.00	2.86	0.40	8.80	3.00	0.47	6.85	2.59	0.16	17.46	5.87
14-May-11	1.90	5.00	2.73	0.10	5.01	2.89	0.47	7.32	2.78	0.93	12.22	5.58
15-May-11	1.90	3.00	2.41	0.40	3.62	2.60	0.00	8.26	2.13	0.00	12.22	3.42
16-May-11	2.00	5.00	2.79	0.40	4.50	2.72	0.93	17.46	5.21	1.86	12.22	6.10
17-May-11	2.00	5.02	2.79	0.50	4.60	2.88	1.40	12.22	5.34	1.09	17.46	6.33
18-May-11	2.48	5.02	3.13	2.25	6.00	3.08	0.00	12.22	3.90	0.47	17.46	7.26
19-May-11	2.55	5.10	3.49	2.48	5.00	3.43	0.00	6.85	2.04	0.00	12.22	3.50
20-May-11	2.40	8.00	3.35	2.25	6.00	3.30	0.00	8.26	2.19	0.00	6.85	2.34
21-May-11	2.00	4.52	2.86	2.00	4.28	3.07	0.00	4.03	1.03	0.00	5.44	2.17
22-May-11	1.89	2.50	2.22	1.99	2.50	2.41	0.00	3.72	1.34	0.00	6.38	2.39
23-May-11	1.83	2.70	2.30	2.00	4.00	3.04	0.00	12.22	2.81	0.62	12.22	4.58
24-May-11	1.99	3.50	2.54	1.99	3.00	2.52	1.24	12.22	3.74	1.24	12.22	5.74
25-May-11	2.00	3.70	2.71	2.00	3.20	2.46	0.62	12.22	4.82	0.00	12.22	5.98
26-May-11	2.25	4.00	3.13	2.00	3.55	2.80	0.00	12.22	2.91	0.00	12.22	4.49
27-May-11	2.25	4.00	3.01	2.15	3.80	3.18	0.00	12.22	2.67	0.00	6.85	2.56
28-May-11	2.00	4.20	2.93	2.00	4.51	2.92	0.78	6.85	3.06	0.00	5.91	2.57
29-May-11	1.80	2.93	2.38	2.00	3.50	2.76	0.00	6.38	2.22	0.00	3.88	1.88
30-May-11	2.00	4.10	2.90	2.00	3.50	2.73	0.00	7.79	2.10	0.00	8.26	2.69
31-May-11	1.89	4.00	2.75	1.50	3.49	2.77	0.00	6.38	2.22	0.16	6.38	2.51
	1.80#	11.00#	2.96	0.10#	9.51#	3.03	0.00#	17.46#	2.86	0.00#	17.46#	3.82

Source: Data on price of PX transactions from IEX and PXIL and data on UI Price from NLDC.

* Weighted average price computed based on Area Clearing Volume (ACV) and Area Clearing Price (ACP) for each hour of the day. ACV and ACP represents the scheduled volume and weighted average price of all the bid areas taken together.

** Simple average price of UI of 96 time blocks of 15 minutes each in a day. UI price includes Ceiling UI Rate+ 40% additional UI charge.

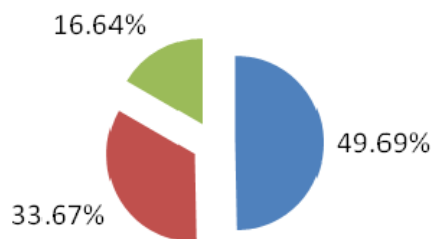
Maximum/Minimum in the month

VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (REGIONAL ENTITY*-WISE) (MUs)										
Month: May 2011										
Name of the State/UT/Other Regional Entity	Through Bilateral			Through Power Exchange			Through UI with Regional Grid			Total Net***
	Sale	Pur- chase	Net**	Sale	Pur- chase	Net**	Export (Under Drawl)	Import (Over Drawl)	Net**	
Punjab	0.00	209.35	209.35	18.03	410.69	392.66	151.49	65.25	-86.24	515.78
Haryana	150.24	186.04	35.79	0.00	38.77	38.77	38.82	347.80	308.98	383.55
Rajasthan	214.91	29.33	-185.58	13.36	248.65	235.29	43.00	272.80	229.79	279.50
Delhi	16.29	369.13	352.84	156.88	3.93	-152.96	266.77	6.03	-260.74	-60.85
Uttar Pradesh	0.00	782.21	782.21	0.00	199.68	199.68	160.80	170.18	9.38	991.27
Uttarakhand	21.60	48.96	27.36	7.39	1.85	-5.54	66.72	29.12	-37.60	-15.78
Himachal Pradesh	423.96	12.42	-411.54	146.04	0.00	-146.04	116.84	6.28	-110.55	-668.14
J & K	312.62	0.00	-312.62	7.04	0.00	-7.04	74.91	14.76	-60.14	-379.80
UT Chandigarh	0.00	7.44	7.44	3.87	0.93	-2.94	7.28	6.36	-0.92	3.58
MP	49.43	125.15	75.72	0.77	4.32	3.55	72.19	63.57	-8.62	70.66
Maharashtra	109.01	461.43	352.42	41.04	35.67	-5.38	13.88	346.82	332.94	679.98
Gujarat	300.45	50.97	-249.49	403.97	75.46	-328.50	235.88	48.78	-187.11	-765.09
Chattisgarh	488.26	218.07	-270.19	39.07	0.00	-39.07	88.19	33.79	-54.40	-363.66
Daman and Diu	0.00	3.33	3.33	0.00	0.00	0.00	18.38	2.29	-16.09	-12.76
Dadra & Nagar Haveli	0.00	11.41	11.41	0.00	0.00	0.00	17.02	5.69	-11.33	0.09
Andhra Pradesh	52.57	282.49	229.91	80.21	15.13	-65.09	123.37	39.80	-83.58	81.25
Karnataka	77.02	176.74	99.73	90.17	1.29	-88.88	53.17	31.59	-21.58	-10.73
Kerala	55.38	30.38	-25.00	0.00	2.47	2.47	2.26	65.35	63.09	40.56
Tamilnadu	4.80	594.45	589.65	0.00	205.61	205.61	23.29	183.56	160.27	955.53
Pondicherry	0.00	0.00	0.00	0.00	0.00	0.00	43.24	0.05	-43.20	-43.20
West Bengal	75.89	258.56	182.68	56.62	34.85	-21.77	118.09	74.99	-43.09	117.81
Orissa	401.48	0.00	-401.48	7.51	0.00	-7.51	83.97	41.81	-42.16	-451.14
Bihar	0.00	0.00	0.00	0.00	0.00	0.00	64.48	17.16	-47.33	-47.33
Jharkhand	0.00	0.00	0.00	0.00	2.40	2.40	35.16	23.40	-11.75	-9.35
Sikkim	34.72	2.40	-32.32	13.56	0.00	-13.56	7.67	2.10	-5.57	-51.45
DVC	91.79	0.00	-91.79	0.00	5.96	5.96	6.29	166.88	160.59	74.76
Arunachal Pradesh	0.09	0.00	-0.09	0.74	6.88	6.14	5.18	4.15	-1.03	5.02
Assam	0.00	0.72	0.72	4.46	13.49	9.03	12.40	40.77	28.37	38.12
Manipur	0.00	0.00	0.00	0.00	0.00	0.00	4.37	4.57	0.20	0.20
Meghalaya	4.65	11.47	6.82	2.09	0.00	-2.09	5.01	9.87	4.86	9.58
Mizoram	0.00	0.00	0.00	2.33	0.00	-2.33	1.56	5.02	3.46	1.13
Nagaland	0.00	0.00	0.00	0.00	0.00	0.00	1.72	5.39	3.68	3.68
Tripura	0.00	4.18	4.18	12.95	0.23	-12.72	9.97	2.27	-7.70	-16.24
GOA	0.00	29.98	29.98	8.45	0.00	-8.45	14.29	13.34	-0.95	20.58
JINDAL POWER	518.51	0.00	-518.51	0.00	0.00	0.00	1.12	32.12	31.00	-487.50
LANKO_AMK	126.93	0.00	-126.76	126.11	1.00	-125.11	61.46	8.68	-52.78	-304.64
LANKO_KONDAPALLY	158.57	1.00	-157.57	51.28	0.00	0.00	4.01	4.16	0.14	-157.43
Source: NLDC										
* in case of a state, the entities which are "selling" also include generators connected to state grid and the entities which are "buying" also include open access consumers.										
** (-) indicates sale and (+) indicates purchase										
*** Total net includes net of transactions through bilateral, power exchange and UI										

Table-1: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (ALL INDIA), MAY 2011				
Sr.No	Short-term transactions	Volume (MUs)	% to Volume of short-term transactions	% to Total Generation
1	Bilateral	3906.62	49.69%	5.20%
	(i) Through Traders and PXs	2855.53	36.32%	3.80%
	(ii) Direct	1051.09	13.37%	1.40%
2	Through Power Exchanges	1308.26	16.64%	1.74%
	IEX	1159.43	14.75%	1.54%
	PXIL	148.82	1.89%	0.20%
3	Through UI	2646.72	33.67%	3.52%
	Total	7861.59	100.00%	10.47%
	Total Generation	75111.16	–	–

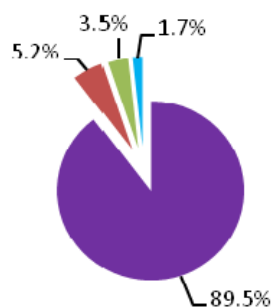
Source: NLDC

Chart-1: Volume of Short-term Transactions of Electricity, May 2011



■ Bilateral ■ Unscheduled Interchange ■ Power Exchanges

Chart-2: Volume of various kinds of Electricity Transactions in Total Electricity Generation, May 2011



■ Long-term ■ Bilateral ■ Through UI ■ Through Power Exchanges

Chart-3: Volume of Short-term Transactions of Electricity, May 2011

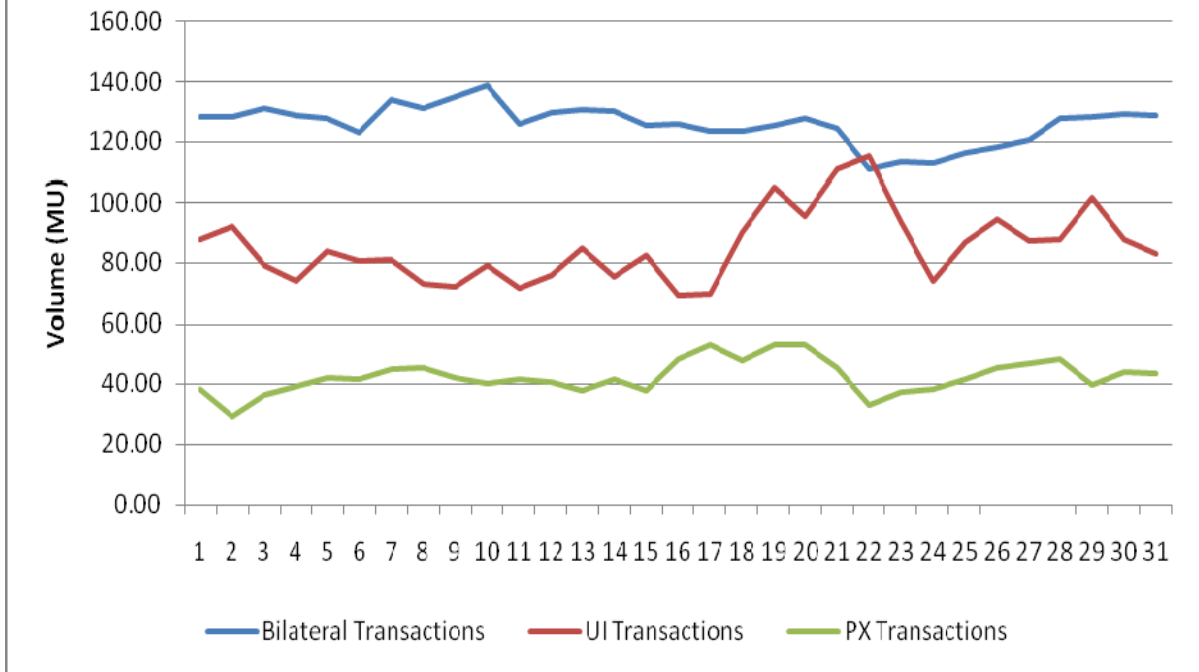


Table-2: Percentage Share of Electricity Traded by Trading Licensees, May 2011			
Sr.No	Name of the Trading Licensee	% Share in total Volume traded by Licensees	Herfindahl-Hirschman Index
1	PTC India Ltd	33.41%	0.1116
2	NTPC Vidyut Vyapar Nigam Ltd	28.68%	0.0823
3	Tata Power Trading Company (P) Ltd	9.41%	0.0089
4	National Energy Trading & Services Ltd	7.75%	0.0060
5	Reliance Energy Trading (P) Ltd	6.38%	0.0041
6	Knowledge Infrastructure Systems (P) Ltd	4.77%	0.0023
7	Instinct Infra & Power Ltd	3.30%	0.0011
8	Mittal Processor (P) Ltd.	2.40%	0.0006
9	JSW Power Trading Company Ltd	2.01%	0.0004
10	GMR Energy Trading Ltd	0.64%	0.0000
11	Shree Cement Ltd.	0.54%	0.0000
12	Global Energy (P) Ltd.	0.35%	0.0000
13	RPG Power Trading Company Ltd.	0.20%	0.0000
14	Essar Electric Power Development Corp. Ltd.	0.13%	0.0000
15	Adani Enterprises Ltd	0.02%	0.0000
	Total	100.00%	0.2173
	Top 5 trading licensees	85.64%	
<i>Note: Volume of electricity traded by the licensees includes bilateral transactions (inter-state) and the transactions undertaken through power exchanges.</i>			
<i>Source: Information submitted by trading licensees</i>			

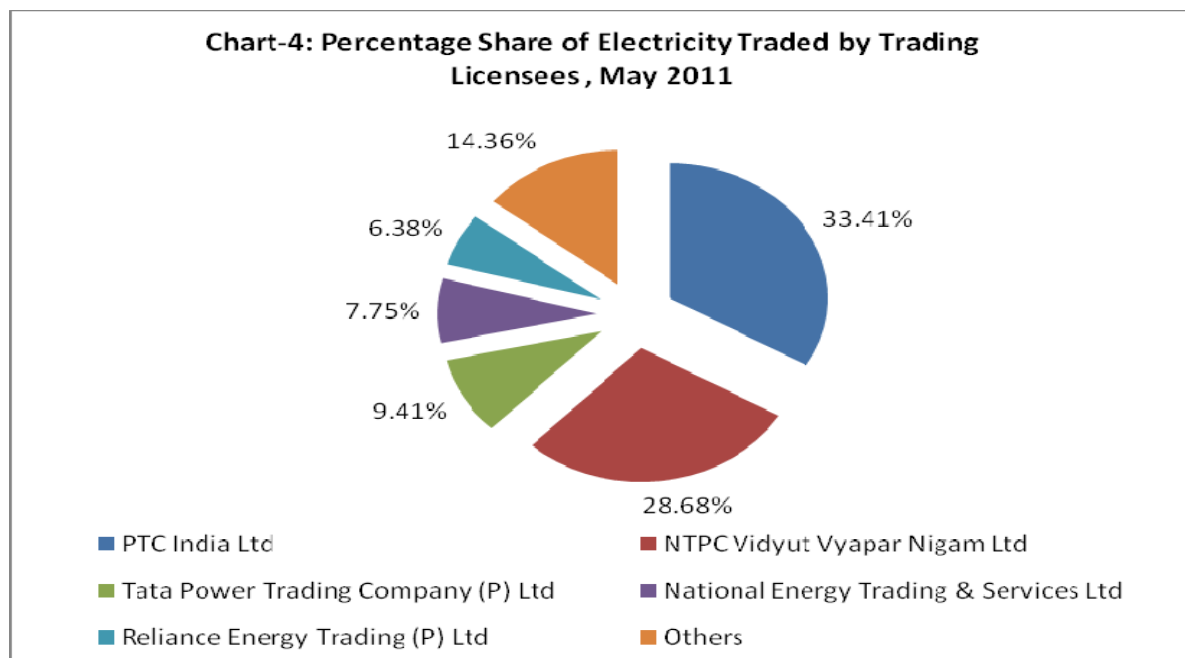


Table-3: PRICE OF POWER TRANSACTED THROUGH TRADERS		
Sr.No	Period of Trade	Weighted Average Sale Price (Rs)
1	RTC	4.52
2	PEAK	5.02
3	OFF PEAK	4.22

Source: Information submitted by trading licensees

Table-4: PRICE OF POWER TRANSACTED THROUGH TRADERS		
Sr.No		Sale Price (Rs/KWh)
1	Minimum	2.75
2	Maximum	8.04
3	Weighted Average	4.49

Source: Information submitted by trading licensees

Table-5: PRICE OF POWER TRANSACTED THROUGH POWER EXCHANGE (Rs/KWh)			
Sr.No	ACP	IEX	PXIL
1	Minimum	1.80	0.10
2	Maximum	11.00	9.51
3	Weighted Average	2.96	3.03

Source: Information submitted by IEX and PXIL

Table-5A: Term ahead market of IEX			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (Rs/kwh)
1	Intra Day Contracts	0.70	4.59
2	Day-Ahead Contingency Contracts	0.51	4.35
3	Weekly Contracts	1.41	7.50
	Total	2.62	

Source: IEX

Table-5B: Term ahead market of PXIL			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (Rs/kwh)
1	Weekly Contracts	0.62	7.50
	Total	0.62	

Source: PXIL

Table-6: PRICE OF POWER TRANSACTED THROUGH UI (Rs/KWh)			
Sr.No		NEW Grid	SR Grid
1	Minimum	0.00	0.00
2	Maximum	17.46	17.46
3	Average	2.86	3.82

Source: NLDC

Chart-5: Price of Short-term Transactions of Electricity, May 2011

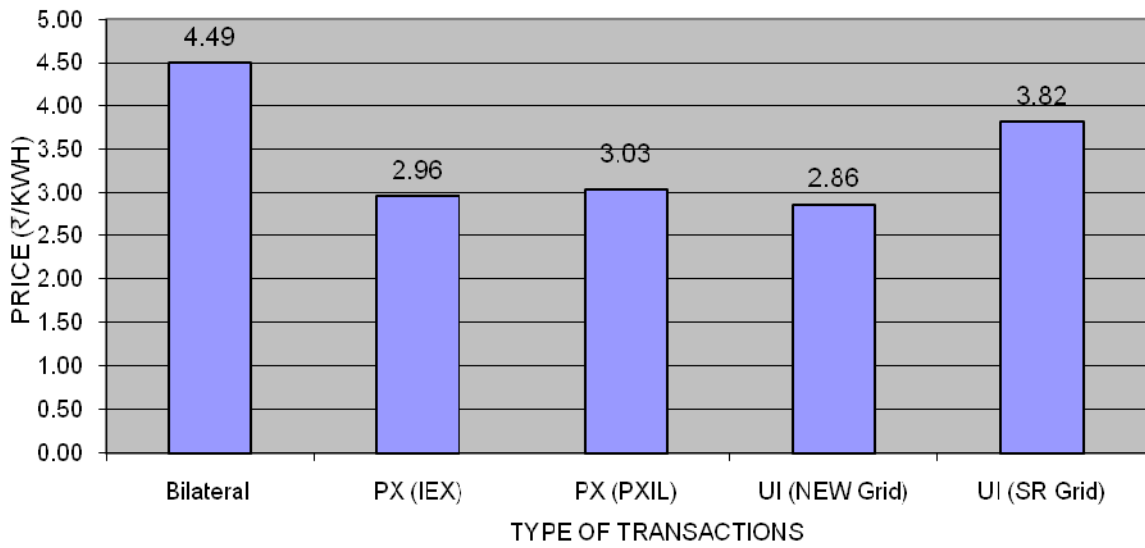


Chart-6: Price of Short-term Transactions of Electricity, May 2011

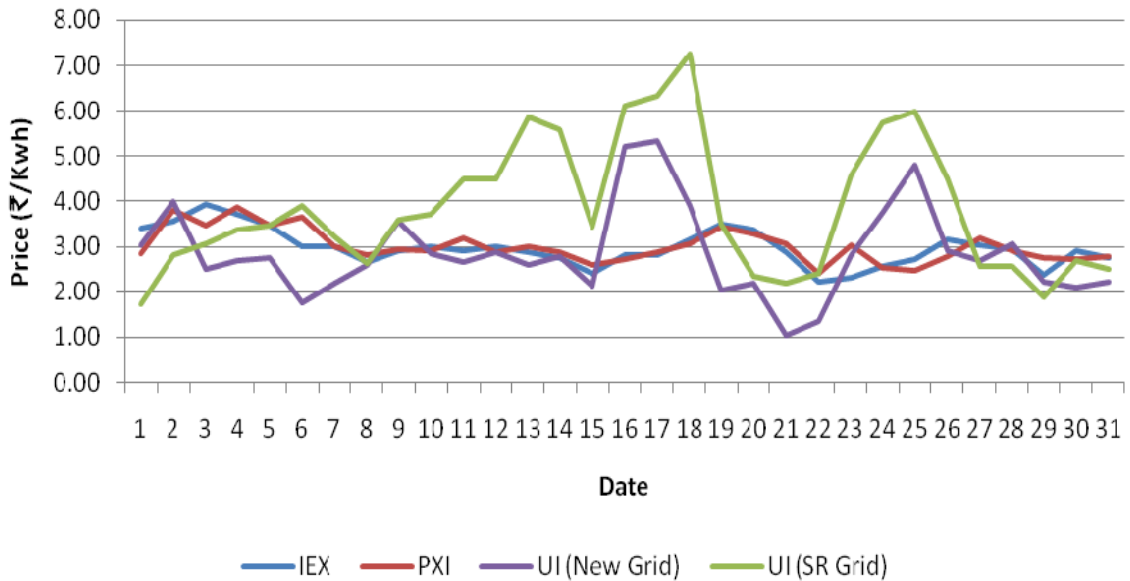


Table-7: VOLUME OF ELECTRICITY SALE THROUGH BILATERAL		
Name of the State/UT/Other Regional Entity	Volume of Sale (MUs)	% of Volume
JINDAL POWER	518.51	14.05%
Chattisgarh	488.26	13.23%
Himachal Pradesh	423.96	11.49%
Orissa	401.48	10.88%
J & K	312.62	8.47%
Gujarat	300.45	8.14%
Rajasthan	214.91	5.83%
LANKO_KONDAPALLY	158.57	4.30%
Haryana	150.24	4.07%
LANKO_AMK	126.93	3.44%
Maharashtra	109.01	2.95%
DVC	91.79	2.49%
Karnataka	77.02	2.09%
West Bengal	75.89	2.06%
Kerala	55.38	1.50%
Andhra Pradesh	52.57	1.43%
MP	49.43	1.34%
Sikkim	34.72	0.94%
Uttarakhand	21.60	0.59%
Delhi	16.29	0.44%
Tamilnadu	4.80	0.13%
Meghalaya	4.65	0.13%
Arunachal Pradesh	0.09	0.00%
Total	3689.16	100.00%
Volume of sale by top 5 States	2144.82	58.14%

Table-8: VOLUME OF ELECTRICITY PURCHASE THROUGH BILATERAL		
Name of the State/UT/Other Regional Entity	Volume of Purchase (MUs)	% of Volume
Uttar Pradesh	782.21	20.02%
Tamilnadu	594.45	15.21%
Maharashtra	461.43	11.81%
Delhi	369.13	9.45%
Andhra Pradesh	282.49	7.23%
West Bengal	258.56	6.62%
Chattisgarh	218.07	5.58%
Punjab	209.35	5.36%
Haryana	186.04	4.76%
Karnataka	176.74	4.52%
MP	125.15	3.20%
Gujarat	50.97	1.30%
Uttarakhand	48.96	1.25%
Kerala	30.38	0.78%
GOA	29.98	0.77%
Rajasthan	29.33	0.75%
Himachal Pradesh	12.42	0.32%
Meghalaya	11.47	0.29%
Dadra & Nagar Haveli	11.41	0.29%
UT Chandigarh	7.44	0.19%
Tripura	4.18	0.11%
Daman and Diu	3.33	0.09%
Sikkim	2.40	0.06%
LANKO_KONDAPALLY	1.00	0.03%
Assam	0.72	0.02%
Total	3907.62	100.00%
Volume of purchase by top 5 States	2489.71	63.71%

Table-9: VOLUME OF ELECTRICITY SALE THROUGH POWER EXCHANGE		
Name of the State/UT/Other Regional Entity	Volume of Sale (MUs)	% of Volume
Gujarat	403.97	31.22%
Delhi	156.88	12.12%
Himachal Pradesh	146.04	11.29%
LANKO_AMK	126.11	9.75%
Karnataka	90.17	6.97%
Andhra Pradesh	80.21	6.20%
West Bengal	56.62	4.38%
LANKO_KONDAPALLY	51.28	3.96%
Maharashtra	41.04	3.17%
Chattisgarh	39.07	3.02%
Punjab	18.03	1.39%
Sikkim	13.56	1.05%
Rajasthan	13.36	1.03%
Tripura	12.95	1.00%
GOA	8.45	0.65%
Orissa	7.51	0.58%
Uttarakhand	7.39	0.57%
J & K	7.04	0.54%
Assam	4.46	0.34%
UT Chandigarh	3.87	0.30%
Mizoram	2.33	0.18%
Meghalaya	2.09	0.16%
MP	0.77	0.06%
Arunachal Pradesh	0.74	0.06%
Total	1293.93	100.00%
Volume of purchase by top 5 States	923.17	71.35%

Table-10: VOLUME OF ELECTRICITY PURCHASE THROUGH POWER EXCHANGE		
Name of the State/UT/Other Regional Entity	Volume of Purchase (MUs)	% of Volume
Punjab	410.69	31.37%
Rajasthan	248.65	18.99%
Tamilnadu	205.61	15.70%
Uttar Pradesh	199.68	15.25%
Gujarat	75.46	5.76%
Haryana	38.77	2.96%
Maharashtra	35.67	2.72%
West Bengal	34.85	2.66%
Andhra Pradesh	15.13	1.16%
Assam	13.49	1.03%
Arunachal Pradesh	6.88	0.53%
DVC	5.96	0.46%
MP	4.32	0.33%
Delhi	3.93	0.30%
Kerala	2.47	0.19%
Jharkhand	2.40	0.18%
Uttarakhand	1.85	0.14%
Karnataka	1.29	0.10%
LANKO_AMK	1.00	0.08%
UT Chandigarh	0.93	0.07%
Tripura	0.23	0.02%
Total	1309.26	100.00%
Volume of sale by top 5 States	1140.10	87.08%

Table-11: VOLUME OF ELECTRICITY EXPORT THROUGH UI		
Name of the State/UT/Other Regional Entity	Volume of Export (MUs)	% of Volume
Delhi	266.77	12.99%
Gujarat	235.88	11.48%
Uttar Pradesh	160.80	7.83%
Punjab	151.49	7.37%
Andhra Pradesh	123.37	6.01%
West Bengal	118.09	5.75%
Himachal Pradesh	116.84	5.69%
Chattisgarh	88.19	4.29%
Orissa	83.97	4.09%
J & K	74.91	3.65%
MP	72.19	3.51%
Uttarakhand	66.72	3.25%
Bihar	64.48	3.14%
LANKO_AMK	61.46	2.99%
Karnataka	53.17	2.59%
Pondicherry	43.24	2.11%
Rajasthan	43.00	2.09%
Haryana	38.82	1.89%
Jharkhand	35.16	1.71%
Tamilnadu	23.29	1.13%
Daman and Diu	18.38	0.89%
Dadra & Nagar Haveli	17.02	0.83%
GOA	14.29	0.70%
Maharashtra	13.88	0.68%
Assam	12.40	0.60%
Tripura	9.97	0.49%
Sikkim	7.67	0.37%
UT Chandigarh	7.28	0.35%
DVC	6.29	0.31%
Arunachal Pradesh	5.18	0.25%
Meghalaya	5.01	0.24%
Manipur	4.37	0.21%
LANKO_KONDAPALLY	4.01	0.20%
Kerala	2.26	0.11%
Nagaland	1.72	0.08%
Mizoram	1.56	0.08%
JINDAL POWER	1.12	0.05%
Total	2054.25	100.00%
Volume of Export by top 5 States	938.32	45.68%

Table-12: VOLUME OF ELECTRICITY IMPORT THROUGH UI		
Name of the State/UT/Other Regional Entity	Volume of Import (MUs)	% of Volume
Haryana	347.80	15.83%
Maharashtra	346.82	15.79%
Rajasthan	272.80	12.42%
Tamilnadu	183.56	8.36%
Uttar Pradesh	170.18	7.75%
DVC	166.88	7.60%
West Bengal	74.99	3.41%
Kerala	65.35	2.97%
Punjab	65.25	2.97%
MP	63.57	2.89%
Gujarat	48.78	2.22%
Orissa	41.81	1.90%
Assam	40.77	1.86%
Andhra Pradesh	39.80	1.81%
Chattisgarh	33.79	1.54%
JINDAL POWER	32.12	1.46%
Karnataka	31.59	1.44%
Uttarakhand	29.12	1.33%
Jharkhand	23.40	1.07%
Bihar	17.16	0.78%
J & K	14.76	0.67%
GOA	13.34	0.61%
Meghalaya	9.87	0.45%
LANKO_AMK	8.68	0.40%
UT Chandigarh	6.36	0.29%
Himachal Pradesh	6.28	0.29%
Delhi	6.03	0.27%
Dadra & Nagar Haveli	5.69	0.26%
Nagaland	5.39	0.25%
Mizoram	5.02	0.23%
Manipur	4.57	0.21%
LANKO_KONDAPALLY	4.16	0.19%
Arunachal Pradesh	4.15	0.19%
Daman and Diu	2.29	0.10%
Tripura	2.27	0.10%
Sikkim	2.10	0.10%
Pondicherry	0.05	0.00%
Total	2196.54	100.00%
Volume of Export by top 5 States	1321.16	60.15%

Table-13: TOTAL VOLUME OF NET SHORT-TERM TRANSACTIONS OF ELECTRICITY (REGIONAL ENTITY-WISE)		
Sr.No	Name of the State/UT/Other Regional Entity	Total volume of net short-term transactions of electricity*
1	Uttar Pradesh	991.27
2	Tamilnadu	955.53
3	Maharashtra	679.98
4	Punjab	515.78
5	Haryana	383.55
6	Rajasthan	279.50
7	West Bengal	117.81
8	Andhra Pradesh	81.25
9	DVC	74.76
10	MP	70.66
11	Kerala	40.56
12	Assam	38.12
13	GOA	20.58
14	Meghalaya	9.58
15	Arunachal Pradesh	5.02
16	Nagaland	3.68
17	UT Chandigarh	3.58
18	Mizoram	1.13
19	Manipur	0.20
20	Dadra & Nagar Haveli	0.09
21	Jharkhand	-9.35
22	Karnataka	-10.73
23	Daman and Diu	-12.76
24	Uttarakhand	-15.78
25	Tripura	-16.24
26	Pondicherry	-43.20
27	Bihar	-47.33
28	Sikkim	-51.45
29	Delhi	-60.85
30	LANKO_KONDAPALLY	-157.43
31	LANKO_AMK	-304.64
32	Chattisgarh	-363.66
33	J & K	-379.80
34	Orissa	-451.14
35	JINDAL POWER	-487.50
36	Himachal Pradesh	-668.14
37	Gujarat	-765.09
* Total volume of net short-term transactions of electricity includes net of transactions of electricity through bilateral, power exchange and UI		
(-) indicates sale and (+) indicates purchase		

Table-14: DETAILS OF CONGESTION IN POWER EXCHANGES, MAY 2011			
	Details of Congestion	IEX	PXIL
A	Unconstrained Cleared Volume* (MU)	1187.41	159.27
B	Actual Cleared Volume and hence scheduled (MU)	1159.43	148.82
C	Volume of electricity that could not be cleared and hence not scheduled because of congestion (MU) (A-B)	27.97	10.45
D	Volume of electricity that could not be cleared as % to Actual Cleared Volume	2%	7%
E	Percentage of the time congestion occurred during the month (Number of hours congestion occurred/Total number of hours in the month)	28%	36%
F	Congestion occurrence (%) time block wise		
	0.00 - 6.00 hours	15%	21%
	6.00 - 12.00 hours	26%	24%
	12.00 - 18.00 hours	29%	26%
	18.00 - 24.00 hours	30%	28%

* This power would have been scheduled had there been no congestion.