



Monthly Report on Short-term Transactions of Electricity in India

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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. Here, “short-term transactions of electricity” refers to 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. The analysis of the report for the month of September 2011 is as under:

I: Volume of Short-term Transactions of Electricity

During the month of September 2011, total electricity generation excluding generation from renewable and captive power plants in India was 70556.91 MUs (Table-1).

Of the total electricity generation, 8587.10 MUs (12.17%) were transacted through short-term, comprising of 4821.18 MUs (6.83%) through Bilateral (through traders and term-ahead contracts on Power Exchanges and directly between distribution companies), followed by 2376.77 MUs (3.37%) through UI and 1389.16 MUs (1.97%) through day ahead collective transactions on Power Exchanges (IEX and PXIL) (Table-1 & Chart-2).

Of the total short-term transactions, Bilateral constitute 56.14% (47.57% through traders and term-ahead contracts on Power Exchanges and 8.57% directly between distribution companies) followed by 27.68% through UI and 16.18% 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 43 trading licensees as on 30.9.2011, of which only 16 have engaged in trading during

September 2011. Top 5 trading licenses had a share of 80.18% 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 0.1692 for the month of September 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 1307.70 MUs and 81.45 MUs respectively. The volume of total Buy bids and Sale bids was 1998.37 MUs and 2106.59 MUs respectively in IEX and 177.56 MUs and 281.59 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 (0.95 times) and in PXIL (0.63 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 147.98 MU in IEX (Table-6) and 18.98 MU in PXIL (Table-7).

II: Price of Short-term Transactions of Electricity

(i) Price of electricity transacted through Traders: Weighted average sale price has been computed for the electricity transacted through traders and it was ₹3.95/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 ₹3.95/kWh, ₹6.26/kWh and ₹4.63/kWh respectively. Minimum and Maximum sale price was ₹3.03/kWh and ₹7.86/kWh respectively (Table-3 & 4).

(ii) 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 were ₹1.45/kWh, ₹10.00/kWh and ₹3.00/kWh respectively in IEX and ₹1.50/kWh, ₹10.51/kWh and ₹3.08/kWh respectively in PXIL (Table-5).

The weighted average price of electricity transacted in term-ahead market through the weekly contracts in IEX was ₹3.61/kWh (Table 6) and in PXIL was ₹3.72/kWh (Table-7).

(iii) 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 ₹3.81/kWh in the NEW Grid and ₹3.24/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-8).

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 48% of the volume are Himachal Pradesh, Madhya Pradesh, Gujarat, Jindal Power Ltd, and Orissa. Top 5 regional entities purchasing 67% of the volume are Uttar Pradesh, Punjab, Tamil Nadu, Andhra Pradesh and Haryana (Table-9 & 10).

Of the total Power Exchange transactions, top 5 regional entities selling 56% of the volume are Gujarat, Karcham Wangtoo Hydro Electric Project, Punjab, Madhya Pradesh and Jindal Power Ltd. Top 5 regional entities purchasing 73% of the volume are Punjab, Maharashtra, Tamil Nadu, West Bengal and Rajasthan (Table-11 & 12).

Of the total UI transactions, top 5 regional entities under drawing 47% of the volume are Madhya Pradesh, Punjab, Bihar, Gujarat and Delhi. Top 5 regional entities overdrawing 56% of the volume are Uttar Pradesh, Maharashtra, Rajasthan, Chattisgarh and Orissa (Table-13 & 14).

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-15. Top 5 regional entities selling electricity are Madhya Pradesh, Gujarat, Himachal Pradesh, Karcham Wangtoo Hydro Electric Project, and Jindal Power Ltd. and top 5 regional entities purchasing electricity are Uttar Pradesh, Punjab, Maharashtra, Tamil Nadu and Andhra Pradesh.

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.

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 September 2011, congestion occurred in both the power exchanges, the details of which are shown in Table-16. The volume of electricity that could not be cleared due to congestion and could not be transacted through power exchanges is the difference 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 1% and 4% 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 30% in IEX and 40% in PXIL.

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.

V: Inferences:

- The percentage of short-term transactions of electricity to total electricity generation was 12.17%.
- Of the total short-term transactions of electricity, 56.14% transacted through bilateral (through traders and term ahead contracts on power exchanges and directly by distribution companies) followed by 27.68% through UI and 16.18% through Power Exchanges.
- Top 5 trading licenses are having share of 80.18% in the total volume traded by all the trading licensees.
- The Herfindahl Hirschman Index computed for volume of electricity traded by trading licensees was 0.1692 indicates moderate concentration of market power.
- The price of electricity transacted through Trading Licensees (₹3.95/kWh) was relatively high when compared with the price of electricity transacted through Power Exchanges (₹3.00/kWh in IEX and ₹3.08/kWh in PXIL). The price of electricity transacted through UI was ₹3.81/kWh in the NEW Grid and ₹3.24/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 (1:0.95) and in PXIL (1:0.63) when compared with the supply offered through these exchanges.
- Top 5 regional entities selling electricity are Madhya Pradesh, Gujarat, Himachal Pradesh, Karcham Wangtoo Hydro Electric Project, and Jindal Power Ltd. and top 5 regional entities purchasing electricity are Uttar Pradesh, Punjab, Maharashtra, Tamil Nadu and Andhra Pradesh.
- The volume of electricity that could not be cleared due to congestion was about 1% and 4% of the actual cleared volume in IEX and PXIL, respectively. In percentage of time terms, congestion occurred 30% of the time (217 hrs in the month) in IEX and 40% of the time (286 hrs in the month) in PXIL.

Format-1: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY IN INDIA (MUs), SEPTEMBER, 2011						Total Electricity Generation (MUs) as given at CEA Website*
Date	Bilateral		Power Exchange (Area Clearing Volume# of day ahead market)		Unscheduled Interchange (Over Draw+Under Generation)	
	Through Traders and PXs**	Direct	IEX	PXI		
1-Sep-11	141.642	28.114	33.52	3.30	82.116	2345.83
2-Sep-11	140.905	34.509	36.21	2.55	77.311	2351.06
3-Sep-11	139.433	31.579	38.97	2.64	74.795	2325.62
4-Sep-11	138.773	28.894	33.52	2.30	76.681	2290.11
5-Sep-11	137.315	30.070	36.58	2.54	73.549	2318.71
6-Sep-11	130.247	31.548	36.89	2.61	73.427	2318.15
7-Sep-11	136.612	31.750	40.08	2.38	73.514	2330.17
8-Sep-11	135.236	30.430	41.64	2.24	82.141	2328.38
9-Sep-11	136.458	30.055	41.52	2.50	96.624	2273.26
10-Sep-11	134.310	30.172	49.34	2.18	80.331	2280.06
11-Sep-11	135.966	25.812	56.77	1.89	81.867	2289.36
12-Sep-11	133.235	30.072	51.99	2.10	77.504	2372.09
13-Sep-11	134.622	31.048	53.74	2.48	76.826	2412.56
14-Sep-11	126.116	30.346	53.64	3.25	72.376	2420.31
15-Sep-11	127.036	31.429	50.66	3.12	93.449	2365.45
16-Sep-11	125.367	24.310	58.32	4.13	87.039	2317.76
17-Sep-11	126.931	23.210	48.80	2.87	82.844	2291.93
18-Sep-11	126.736	15.674	49.69	3.67	92.116	2236.77
19-Sep-11	134.587	18.409	47.06	2.71	77.423	2311.08
20-Sep-11	139.246	18.409	52.13	1.90	74.631	2361.80
21-Sep-11	139.862	18.343	46.05	2.81	74.365	2381.43
22-Sep-11	144.809	18.210	44.22	3.19	67.952	2422.00
23-Sep-11	142.565	18.210	43.07	3.76	71.974	2436.52
24-Sep-11	143.444	18.210	43.84	3.69	71.571	2391.08
25-Sep-11	144.009	15.054	31.07	2.64	86.833	2358.30
26-Sep-11	141.464	18.244	38.38	2.23	87.916	2370.18
27-Sep-11	140.459	18.697	32.54	1.13	84.343	2391.08
28-Sep-11	138.699	18.585	37.36	0.87	74.041	2426.46
29-Sep-11	134.872	18.410	36.63	4.19	76.213	2407.70
30-Sep-11	133.905	18.515	43.48	3.58	74.994	2431.70
Total	4084.86	736.32	1307.70	81.45	2376.77	70556.91

Source: NLDC

* Gross Electricity Generation excluding electricity generation from renewables 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.

Format-2: PRICE OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (₹/KWh), SEPTEMBER 2011

Market Segment	Day ahead market of IEX			Day ahead market of PXIL			Under Drawl/Over Drawl from the Grid (UI)						
	Date	Minimum ACP	Maximum ACP	Weighted Average Price*	Minimum ACP	Maximum ACP	Weighted Average Price*	NEW Grid			SR Grid		
								Minimum Price	Maximum Price	Average Price**	Minimum Price	Maximum Price	Average Price**
1-Sep-11	2.00	5.00	2.93	1.70	4.51	2.69	0.00	4.97	2.10	0.00	2.95	1.24	
2-Sep-11	1.99	5.60	2.92	2.00	5.00	3.06	0.16	5.44	1.83	0.00	3.88	1.34	
3-Sep-11	1.90	5.00	2.77	2.00	4.90	2.77	0.31	6.38	1.74	0.00	4.03	1.50	
4-Sep-11	1.80	4.20	2.31	1.96	4.60	2.42	0.00	3.88	1.12	0.00	3.41	1.35	
5-Sep-11	1.80	4.49	2.43	2.00	4.20	2.50	0.00	4.50	1.63	0.16	5.44	1.71	
6-Sep-11	1.71	4.49	2.40	1.97	4.10	2.50	0.00	3.57	1.69	0.00	3.88	1.77	
7-Sep-11	1.60	4.50	2.48	1.90	4.25	2.73	0.00	6.38	1.62	0.31	4.03	1.94	
8-Sep-11	1.60	4.49	2.39	1.90	4.00	2.56	0.00	17.46	2.51	0.31	6.85	2.52	
9-Sep-11	1.50	3.99	2.11	1.80	4.00	2.53	0.00	17.46	2.72	0.00	6.38	2.29	
10-Sep-11	1.46	5.00	2.18	1.50	3.75	2.16	1.09	17.46	4.10	0.16	3.88	2.13	
11-Sep-11	1.50	5.50	2.21	1.50	3.25	2.07	0.00	12.22	2.22	0.00	3.26	1.16	
12-Sep-11	1.55	6.00	2.62	1.70	4.50	2.31	0.62	17.46	3.64	0.47	4.03	1.93	
13-Sep-11	1.90	5.50	2.69	1.68	5.00	2.84	1.55	12.22	3.68	0.31	17.46	2.44	
14-Sep-11	2.00	5.50	2.89	2.00	5.25	2.93	1.86	12.22	4.86	0.62	3.41	2.09	
15-Sep-11	2.20	6.00	3.13	2.00	5.25	2.88	0.16	3.88	1.94	0.47	3.41	1.68	
16-Sep-11	1.98	5.50	2.92	2.00	5.50	3.04	0.00	6.85	1.34	0.47	4.97	2.12	
17-Sep-11	1.50	5.00	2.43	2.00	10.50	2.67	0.00	3.57	1.30	1.09	3.57	2.24	
18-Sep-11	1.45	3.88	2.05	1.80	4.50	2.58	0.00	12.22	1.67	1.24	5.91	2.56	
19-Sep-11	1.45	5.00	2.31	2.00	6.00	2.72	0.93	12.22	2.86	0.78	5.44	2.84	
20-Sep-11	1.50	8.00	2.67	1.82	7.50	2.59	1.55	12.22	3.42	0.78	4.50	2.54	
21-Sep-11	1.45	8.00	3.04	1.80	10.51	2.56	1.09	4.97	2.57	0.47	5.44	2.73	
22-Sep-11	2.00	8.01	3.14	2.00	6.50	2.74	1.40	7.79	3.23	1.55	7.32	3.51	
23-Sep-11	2.21	7.00	3.12	2.01	5.00	2.87	1.86	12.22	4.60	1.86	17.46	4.52	
24-Sep-11	2.75	7.25	3.57	2.50	5.75	2.96	2.17	17.46	7.57	1.40	12.22	4.89	
25-Sep-11	3.02	5.75	3.67	2.70	10.51	3.25	2.33	12.22	4.67	1.55	12.22	5.13	
26-Sep-11	3.00	6.00	3.88	3.00	6.50	4.07	2.79	12.22	6.29	1.86	8.26	4.70	
27-Sep-11	3.10	6.00	4.14	3.50	8.01	5.12	2.64	12.22	7.91	1.24	12.22	6.20	
28-Sep-11	4.00	8.01	4.94	4.00	8.00	4.97	3.10	17.46	9.83	2.33	17.46	7.79	
29-Sep-11	3.82	9.01	5.17	4.12	9.00	5.29	3.57	17.46	11.74	1.09	17.46	8.11	
30-Sep-11	4.80	10.00	5.95	4.60	9.20	6.04	2.48	17.46	7.80	1.71	17.46	10.33	
	1.45#	10.00#	3.00	1.50#	10.51#	3.08	0.00#	17.46#	3.81	0.00#	17.46#	3.24	

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. Here, ACV and ACP represent the scheduled volume and weighted average price of all the bid areas of power exchanges.

** 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

Format-3: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (REGIONAL ENTITY*-WISE) (MUs), SEPTEMBER 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	1.85	845.63	843.78	124.89	318.77	193.89	207.04	23.44	-183.61	854.06
Haryana	34.48	343.18	308.70	75.73	45.48	-30.25	71.75	117.53	45.78	324.22
Rajasthan	319.06	0.00	-319.06	39.69	100.67	60.98	32.39	196.74	164.35	-93.73
Delhi	55.20	256.53	201.33	65.46	1.63	-63.83	113.43	31.92	-81.51	55.99
Uttar Pradesh	115.85	1175.05	1059.20	0.00	87.98	87.98	42.74	403.43	360.69	1507.87
Uttarakhand	121.92	0.00	-121.92	21.67	0.89	-20.78	40.71	46.74	6.03	-136.67
Himachal Pradesh	588.31	0.00	-588.31	46.05	0.00	-46.05	52.06	19.26	-32.80	-667.16
J & K	232.13	0.00	-232.13	5.13	0.00	-5.13	98.35	28.18	-70.17	-307.43
UT Chandigarh	0.00	21.60	21.60	10.41	0.05	-10.36	11.18	2.60	-8.58	2.66
MP	514.21	73.29	-440.92	122.85	22.67	-100.18	247.54	16.91	-230.63	-771.73
Maharashtra	9.49	230.87	221.38	32.73	308.86	276.13	23.01	308.55	285.53	783.04
Gujarat	500.17	1.07	-499.10	241.84	57.47	-184.37	136.40	50.96	-85.44	-768.91
Chattisgarh	175.00	31.02	-143.98	35.52	0.00	-35.52	19.43	180.69	161.26	-18.24
Daman and Diu	0.00	15.84	15.84	0.00	0.00	0.00	0.83	27.27	26.44	42.28
Dadra & Nagar Haveli	0.00	23.04	23.04	0.00	41.88	41.88	2.71	35.92	33.21	98.13
Andhra Pradesh	136.24	397.91	261.67	6.25	15.06	8.81	22.45	84.22	61.77	332.25
Karnataka	2.64	85.11	82.46	24.84	31.26	6.41	37.74	77.36	39.62	128.50
Kerala	22.26	152.74	130.48	3.08	5.90	2.82	45.19	15.41	-29.78	103.51
Tamilnadu	165.87	479.56	313.69	0.00	178.21	178.21	50.19	57.42	7.23	499.13
Pondicherry	0.00	0.00	0.00	0.00	0.00	0.00	15.55	1.61	-13.94	-13.94
West Bengal	105.15	271.48	166.33	41.54	104.50	62.96	43.82	135.97	92.14	321.43
Orissa	325.36	29.25	-296.11	26.81	50.76	23.95	20.69	149.18	128.49	-143.67
Bihar	0.00	213.13	213.13	0.00	0.00	0.00	156.45	2.33	-154.11	59.01
Jharkhand	0.00	72.00	72.00	0.00	0.00	0.00	78.86	2.56	-76.31	-4.31
Sikkim	26.03	7.85	-18.18	37.90	0.00	-37.90	6.19	5.97	-0.22	-56.31
DVC	95.41	25.25	-70.16	0.90	0.00	-0.90	67.19	52.09	-15.09	-86.15
Arunachal Pradesh	0.00	0.00	0.00	0.00	0.00	0.00	9.76	2.58	-7.18	-7.18
Assam	0.00	0.19	0.19	0.36	13.89	13.53	14.15	27.22	13.07	26.80
Manipur	0.00	0.00	0.00	0.00	0.00	0.00	21.05	0.06	-20.98	-20.98
Meghalaya	2.50	0.00	-2.50	8.11	0.00	-8.11	10.65	2.29	-8.36	-18.97
Mizoram	0.00	0.00	0.00	12.47	0.00	-12.47	2.41	2.75	0.34	-12.13
Nagaland	1.45	0.00	-1.45	8.94	0.00	-8.94	7.70	4.12	-3.58	-13.98
Tripura	5.76	2.37	-3.39	10.37	0.66	-9.71	6.93	4.16	-2.77	-15.87
GOA	0.00	67.21	67.21	16.72	2.56	-14.16	20.75	19.48	-1.28	51.77
JINDAL POWER	349.33	0.00	-349.33	110.60	0.00	-110.60	4.93	9.31	4.37	-455.55
LANKO_AMK	206.08	0.00	-206.10	34.40	0.00	-34.40	32.64	11.63	-21.00	-261.51
LANKO_KONDAPALLY	206.64	0.00	-206.64	9.83	0.00	-9.83	1.97	5.53	3.56	-212.91
STERLITE	0.00	0.00	0.00	24.80	0.00	-24.80	13.22	0.00	-13.22	-38.02
AD HYDRO	47.45	0.00	-47.45	6.34	0.00	-6.34	4.74	1.21	-3.52	-57.31
KARCHAM WANGTOO	269.55	0.00	-269.55	181.74	0.00	-181.74	30.79	1.98	-28.81	-480.10
SHREE CEMENT	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.27	0.07	0.07
NSPCL	45.09	0.00	-45.09	0.00	0.00	0.00	1.37	1.02	-0.35	-45.44
MAITHON POWER LTD	88.89	0.00	-88.89	1.18	0.00	-1.18	0.22	25.73	25.51	-64.56

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), SEPTEMBER 2011				
Sr.No	Short-term transactions	Volume (MUs)	% to Volume of short-term transactions	% to Total Generation
1	Bilateral	4821.18	56.14%	6.83%
	(i) Through Traders and PXs	4084.86	47.57%	5.79%
	(ii) Direct	736.32	8.57%	1.04%
2	Through Power Exchanges	1389.16	16.18%	1.97%
	IEX	1307.70	15.23%	1.85%
	PXIL	81.45	0.95%	0.12%
3	Through UI	2376.77	27.68%	3.37%
	Total	8587.10	100.00%	12.17%
	Total Generation	70556.91	–	–

Source: NLDC

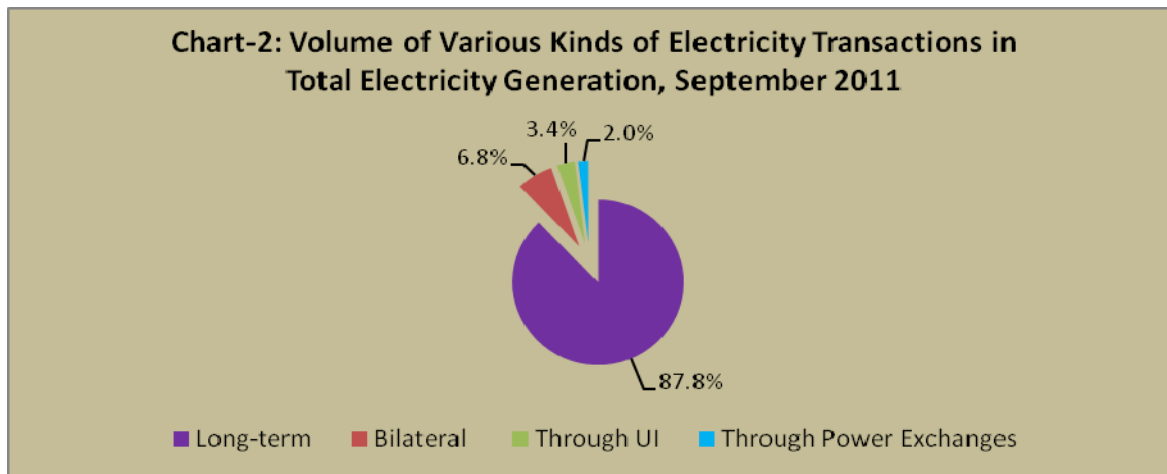
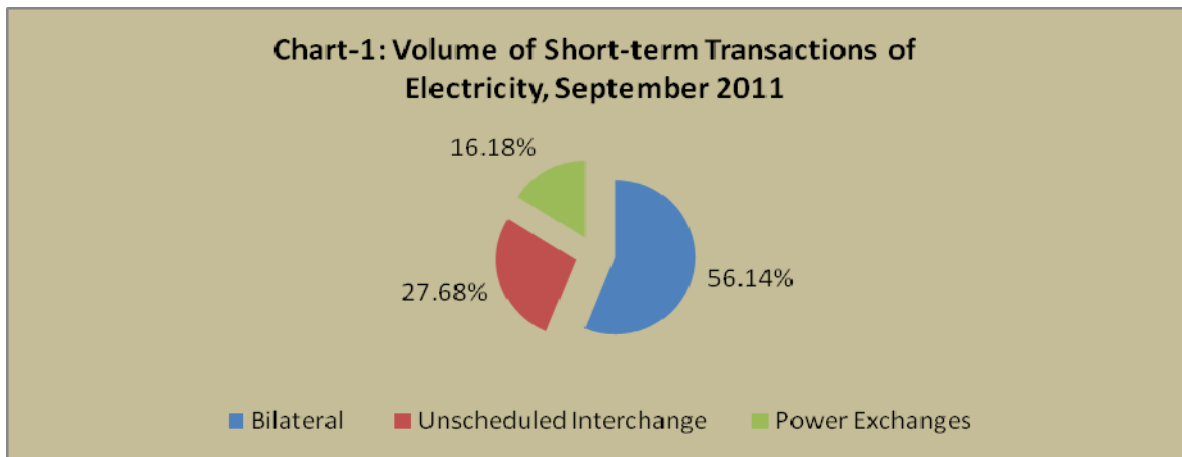


Chart-3: Volume of Short-term Transactions of Electricity, September 2011 (Day-wise)

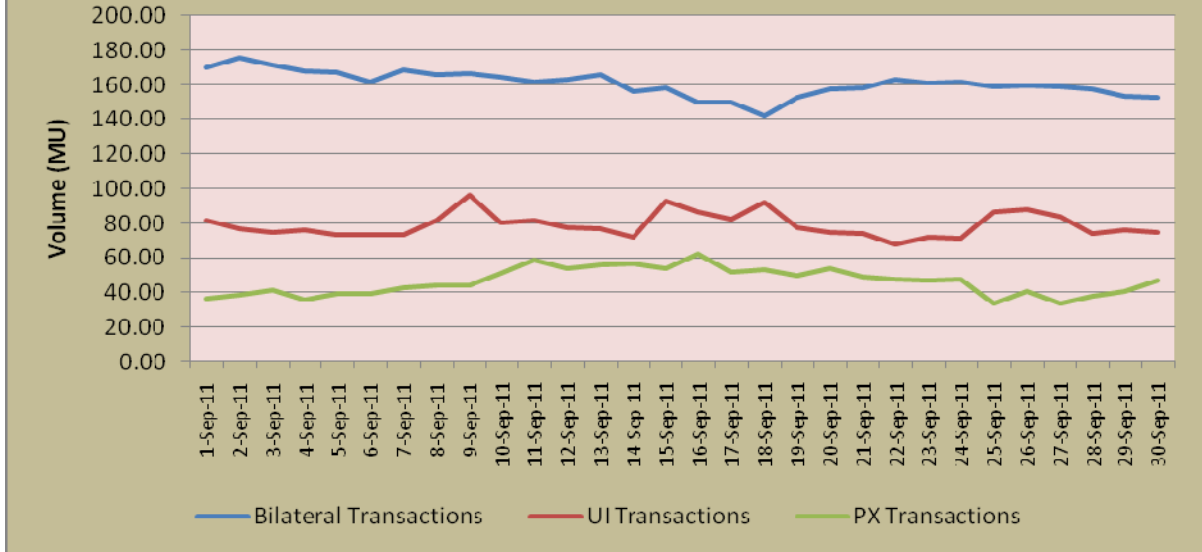


Table-2: PERCENTAGE SHARE OF ELECTRICITY TRANSACTED BY TRADING LICENSEES, SEPTEMBER 2011			
Sr.No	Name of the Trading Licensee	% Share in total Volume transacted by Trading Licensees	Herfindahl-Hirschman Index
1	PTC India Ltd	30.38%	0.0923
2	NTPC Vidyut Vyapar Nigam Ltd	19.46%	0.0379
3	National Energy Trading & Services Ltd	14.56%	0.0212
4	Adani Enterprises Ltd	7.97%	0.0064
5	Tata Power Trading Company (P) Ltd	7.81%	0.0061
6	Jaiprakash Associate Ltd.	3.62%	0.0013
7	Shree Cement Ltd.	3.34%	0.0011
8	Reliance Energy Trading (P) Ltd	3.10%	0.0010
9	GMR Energy Trading Ltd	2.70%	0.0007
10	Instinct Infra & Power Ltd.	2.53%	0.0006
11	Knowledge Infrastructure Systems (P) Ltd	1.99%	0.0004
12	JSW Power Trading Company Ltd	1.34%	0.0002
13	Global Energy (P) Ltd.	0.64%	0.0000
14	RPG Power Trading Company Ltd.	0.40%	0.0000
15	Jindal Power Trading Company Ltd.	0.10%	0.0000
16	Essar Electric Power Development Corp. Ltd.	0.04%	0.0000
	TOTAL	100.00%	0.1692
	Top 5 trading licensees	80.18%	
<i>Note: Volume of electricity transacted by the trading licensees includes bilateral transactions (inter-state) and the transactions undertaken through power exchanges.</i>			
<i>Source: Information submitted by trading licensees</i>			

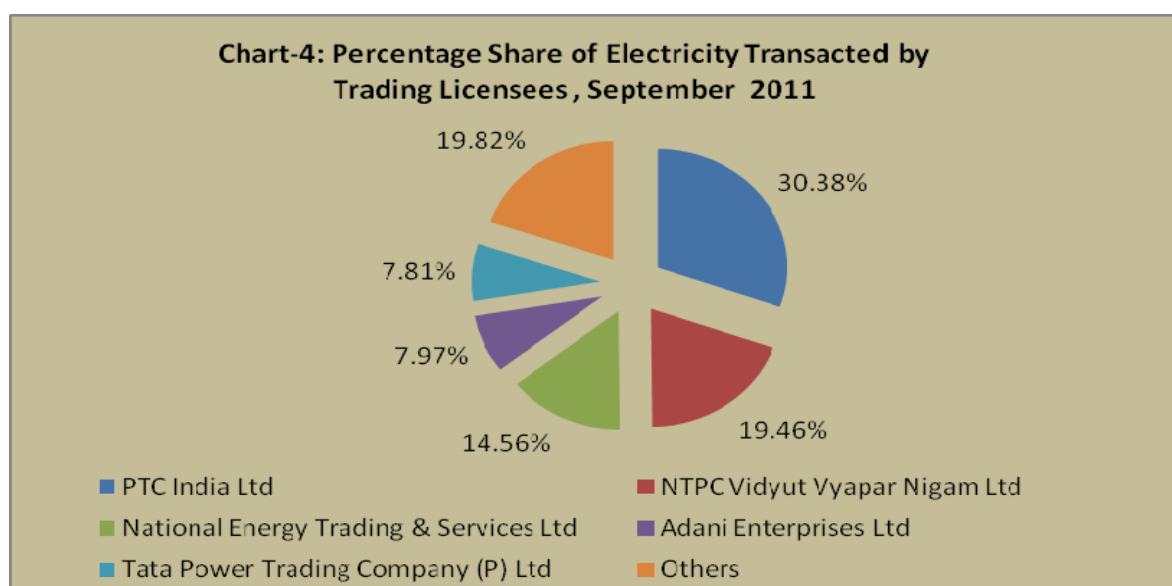


Table-3: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS, SEPTEMBER 2011		
Sr.No		Sale Price of Traders (₹/kWh)
1	Minimum	3.03
2	Maximum	7.86
3	Weighted Average	3.95

Source: Information submitted by trading licensees

Table-4: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS (TIME-WISE), SEPTEMBER 2011		
Sr.No	Period of Trade	Sale Price of Traders (₹/kWh)
1	RTC	3.95
2	PEAK	6.26
3	OFF PEAK	4.63

Source: Information submitted by trading licensees

Table-5: PRICE OF ELECTRICITY TRANSACTED THROUGH POWER EXCHANGES, SEPTEMBER 2011			
Sr.No	ACP	Price in IEX (₹/kWh)	Price in PXIL (₹/kWh)
1	Minimum	1.45	1.50
2	Maximum	10.00	10.51
3	Weighted Average	3.00	3.08

Source: Information submitted by IEX and PXIL

Table-6: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF IEX, SEPTEMBER 2011			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Intra Day Contracts	4.39	5.46
2	Day Ahead Contingency Contracts	1.56	4.80
3	Daily Contracts	26.87	3.50
4	Weekly Contracts	147.98	3.61
	Total	180.80	

Source: IEX

Table-7: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF PXIL, SEPTEMBER 2011			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Day Ahead Contingency Contracts	1.12	4.76
2	Weekly Contracts	18.98	3.72
	Total	20.10	

Source: PXIL

Table-8: PRICE OF ELECTRICITY TRANSACTED THROUGH UI, SEPTEMBER 2011			
Sr.No		Price in NEW Grid (₹/kWh)	Price in SR Grid (₹/kWh)
1	Minimum	0.00	0.00
2	Maximum	17.46	17.46
3	Average	3.81	3.24

Source: NLDC

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

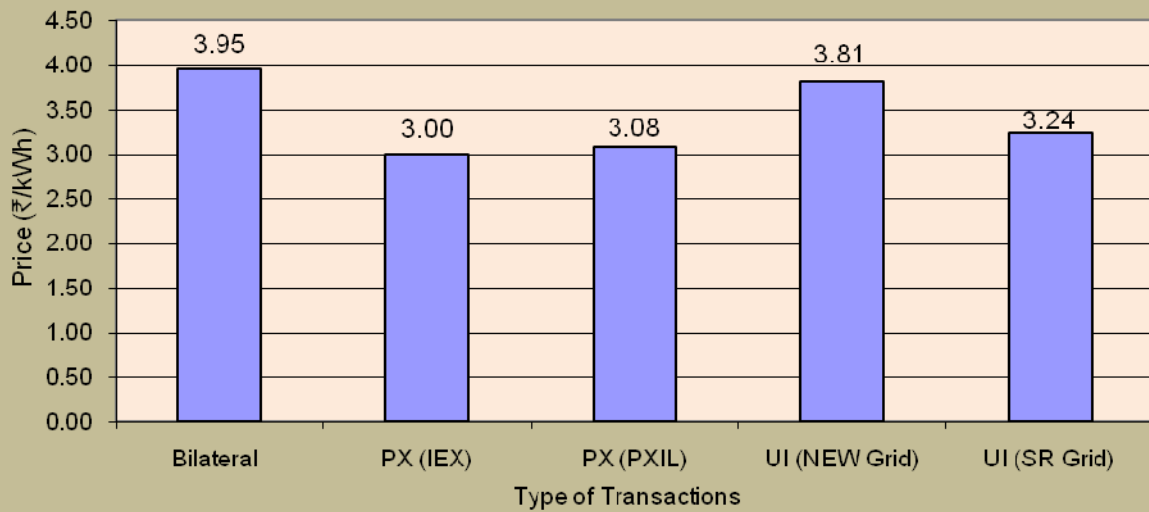


Chart-6: Price of Short-term Transactions of Electricity, September 2011 (Day-wise)

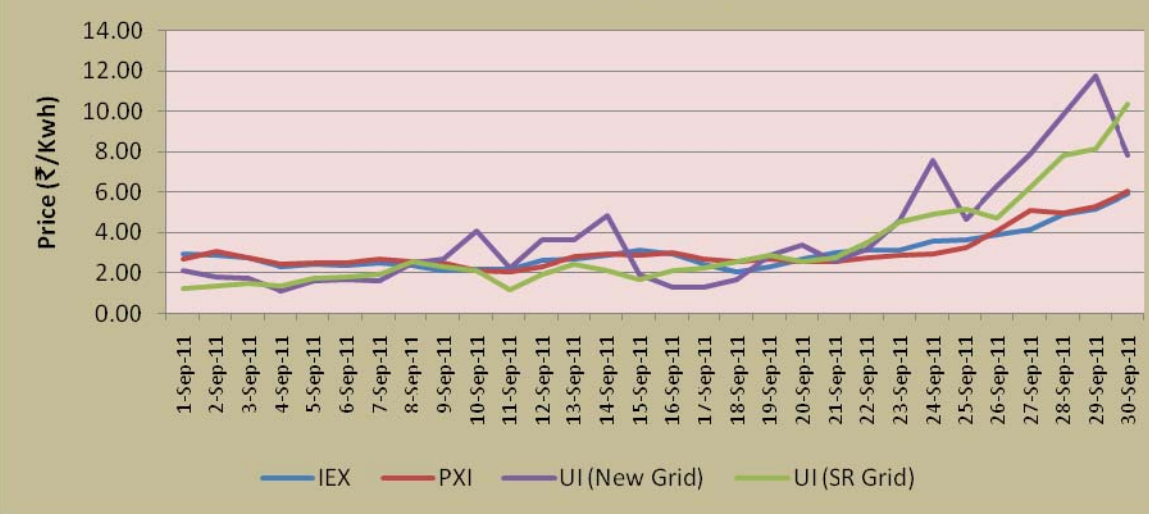


Table-9: VOLUME OF ELECTRICITY SALE THROUGH BILATERAL, SEPTEMBER 2011

Name of the State/UT/Other Regional Entity	Volume of sale (MUs)	% of Volume
Himachal Pradesh	588.31	12.34%
MP	514.21	10.78%
Gujarat	500.17	10.49%
JINDAL POWER	349.33	7.32%
Orissa	325.36	6.82%
Rajasthan	319.06	6.69%
KARCHAM WANGTOO	269.55	5.65%
J & K	232.13	4.87%
LANKO_KONDAPALLY	206.64	4.33%
LANKO_AMK	206.08	4.32%
Chattisgarh	175.00	3.67%
Tamilnadu	165.87	3.48%
Andhra Pradesh	136.24	2.86%
Uttarakhand	121.92	2.56%
Uttar Pradesh	115.85	2.43%
West Bengal	105.15	2.20%
DVC	95.41	2.00%
MAITHON POWER LTD	88.89	1.86%
Delhi	55.20	1.16%
AD HYDRO	47.45	0.99%
NSPCL	45.09	0.95%
Haryana	34.48	0.72%
Sikkim	26.03	0.55%
Kerala	22.26	0.47%
Maharashtra	9.49	0.20%
Tripura	5.76	0.12%
Karnataka	2.64	0.06%
Meghalaya	2.50	0.05%
Punjab	1.85	0.04%
Nagaland	1.45	0.03%
Total	4769.36	100.00%
Volume of sale by top 5 States	2277.37	47.75%

Table-10: VOLUME OF ELECTRICITY PURCHASE THROUGH BILATERAL, SEPTEMBER 2011

Name of the State/UT/Other Regional Entity	Volume of Purchase (MUs)	% of Volume
Uttar Pradesh	1175.05	24.37%
Punjab	845.63	17.54%
Tamilnadu	479.56	9.95%
Andhra Pradesh	397.91	8.25%
Haryana	343.18	7.12%
West Bengal	271.48	5.63%
Delhi	256.53	5.32%
Maharashtra	230.87	4.79%
Bihar	213.13	4.42%
Kerala	152.74	3.17%
Karnataka	85.11	1.77%
MP	73.29	1.52%
Jharkhand	72.00	1.49%
GOA	67.21	1.39%
Chattisgarh	31.02	0.64%
Orissa	29.25	0.61%
DVC	25.25	0.52%
Dadra & Nagar Haveli	23.04	0.48%
UT Chandigarh	21.60	0.45%
Daman and Diu	15.84	0.33%
Sikkim	7.85	0.16%
Tripura	2.37	0.05%
Gujarat	1.07	0.02%
Assam	0.19	0.00%
Total	4821.18	100.00%
Volume of sale by top 5 States	3241.33	67.23%

Table-11: VOLUME OF ELECTRICITY SALE THROUGH POWER EXCHANGES, SEPTEMBER 2011

Name of the State/UT/Other Regional Entity	Volume of Sale (MUs)	% of Volume
Gujarat	241.84	17.41%
KARCHAM WANGTOO	181.74	13.08%
Punjab	124.89	8.99%
MP	122.85	8.84%
JINDAL POWER	110.60	7.96%
Haryana	75.73	5.45%
Delhi	65.46	4.71%
Himachal Pradesh	46.05	3.31%
West Bengal	41.54	2.99%
Rajasthan	39.69	2.86%
Sikkim	37.90	2.73%
Chattisgarh	35.52	2.56%
LANKO_AMK	34.40	2.48%
Maharashtra	32.73	2.36%
Orissa	26.81	1.93%
Karnataka	24.84	1.79%
STERLITE	24.80	1.79%
Uttarakhand	21.67	1.56%
GOA	16.72	1.20%
Mizoram	12.47	0.90%
UT Chandigarh	10.41	0.75%
Tripura	10.37	0.75%
LANKO_KONDAPALLY	9.83	0.71%
Nagaland	8.94	0.64%
Meghalaya	8.11	0.58%
AD HYDRO	6.34	0.46%
Andhra Pradesh	6.25	0.45%
J & K	5.13	0.37%
Kerala	3.08	0.22%
MAITHON POWER LTD	1.18	0.09%
DVC	0.90	0.06%
Assam	0.36	0.03%
Total	1389.16	100.00%
Volume of sale by top 5 States	781.91	56.29%

Table-12: VOLUME OF ELECTRICITY PURCHASE THROUGH POWER EXCHANGES, SEPTEMBER 2011

Name of the State/UT/Other Regional Entity	Volume of Purchase (MUs)	% of Volume
Punjab	318.77	22.95%
Maharashtra	308.86	22.23%
Tamilnadu	178.21	12.83%
West Bengal	104.50	7.52%
Rajasthan	100.67	7.25%
Uttar Pradesh	87.98	6.33%
Gujarat	57.47	4.14%
Orissa	50.76	3.65%
Haryana	45.48	3.27%
Dadra & Nagar Haveli	41.88	3.01%
Karnataka	31.26	2.25%
MP	22.67	1.63%
Andhra Pradesh	15.06	1.08%
Assam	13.89	1.00%
Kerala	5.90	0.42%
GOA	2.56	0.18%
Delhi	1.63	0.12%
Uttarakhand	0.89	0.06%
Tripura	0.66	0.05%
UT Chandigarh	0.05	0.00%
Total	1389.16	100.00%
Volume of purchase by top 5 States	1011.03	72.78%

Table-13: VOLUME OF ELECTRICITY EXPORT THROUGH UI, SEPTEMBER 2011		
Name of the State/UT/Other Regional Entity	Volume of Export (MUs)	% of Volume
MP	247.54	13.55%
Punjab	207.04	11.33%
Bihar	156.45	8.56%
Gujarat	136.40	7.46%
Delhi	113.43	6.21%
J & K	98.35	5.38%
Jharkhand	78.86	4.32%
Haryana	71.75	3.93%
DVC	67.19	3.68%
Himachal Pradesh	52.06	2.85%
Tamilnadu	50.19	2.75%
Kerala	45.19	2.47%
West Bengal	43.82	2.40%
Uttar Pradesh	42.74	2.34%
Uttarakhand	40.71	2.23%
Karnataka	37.74	2.07%
LANKO_AMK	32.64	1.79%
Rajasthan	32.39	1.77%
KARCHAM WANGTOO	30.79	1.69%
Maharashtra	23.01	1.26%
Andhra Pradesh	22.45	1.23%
Manipur	21.05	1.15%
GOA	20.75	1.14%
Orissa	20.69	1.13%
Chattisgarh	19.43	1.06%
Pondicherry	15.55	0.85%
Assam	14.15	0.77%
STERLITE	13.22	0.72%
UT Chandigarh	11.18	0.61%
Meghalaya	10.65	0.58%
Arunachal Pradesh	9.76	0.53%
Nagaland	7.70	0.42%
Tripura	6.93	0.38%
Sikkim	6.19	0.34%
JINDAL POWER	4.93	0.27%
AD HYDRO	4.74	0.26%
Dadra & Nagar Haveli	2.71	0.15%
Mizoram	2.41	0.13%
LANKO_KONDAPALLY	1.97	0.11%
NSPCL	1.37	0.07%
Daman and Diu	0.83	0.05%
MAITHON POWER LTD	0.22	0.01%
SHREE CEMENT	0.20	0.01%
Total	1827.39	100.00%
Volume of Export by top 5 States	860.86	47.11%

Table-14: VOLUME OF ELECTRICITY IMPORT THROUGH UI, SPETEMBER 2011		
Name of the State/UT/Other Regional Entity	Volume of Import (MUs)	% of Volume
Uttar Pradesh	403.43	18.39%
Maharashtra	308.55	14.07%
Rajasthan	196.74	8.97%
Chattisgarh	180.69	8.24%
Orissa	149.18	6.80%
West Bengal	135.97	6.20%
Haryana	117.53	5.36%
Andhra Pradesh	84.22	3.84%
Karnataka	77.36	3.53%
Tamilnadu	57.42	2.62%
DVC	52.09	2.37%
Gujarat	50.96	2.32%
Uttarakhand	46.74	2.13%
Dadra & Nagar Haveli	35.92	1.64%
Delhi	31.92	1.46%
J & K	28.18	1.28%
Daman and Diu	27.27	1.24%
Assam	27.22	1.24%
MAITHON POWER LTD	25.73	1.17%
Punjab	23.44	1.07%
GOA	19.48	0.89%
Himachal Pradesh	19.26	0.88%
MP	16.91	0.77%
Kerala	15.41	0.70%
LANKO_AMK	11.63	0.53%
JINDAL POWER	9.31	0.42%
Sikkim	5.97	0.27%
LANKO_KONDAPALLY	5.53	0.25%
Tripura	4.16	0.19%
Nagaland	4.12	0.19%
Mizoram	2.75	0.13%
UT Chandigarh	2.60	0.12%
Arunachal Pradesh	2.58	0.12%
Jharkhand	2.56	0.12%
Bihar	2.33	0.11%
Meghalaya	2.29	0.10%
KARCHAM WANGTOO	1.98	0.09%
Pondicherry	1.61	0.07%
AD HYDRO	1.21	0.06%
NSPCL	1.02	0.05%
SHREE CEMENT	0.27	0.01%
Manipur	0.06	0.00%
STERLITE	0.00	0.00%
Total	2193.59	100.00%
Volume of Export by top 5 States	1238.58	56.46%

Table-15: TOTAL VOLUME OF NET SHORT-TERM TRANSACTIONS OF ELECTRICITY (REGIONAL ENTITY-WISE), SEPTEMBER 2011

Sr.No	Name of the State/UT/Other Regional Entity	Total volume of net short-term transactions of electricity*
1	Uttar Pradesh	1507.87
2	Punjab	854.06
3	Maharashtra	783.04
4	Tamilnadu	499.13
5	Andhra Pradesh	332.25
6	Haryana	324.22
7	West Bengal	321.43
8	Karnataka	128.50
9	Kerala	103.51
10	Dadra & Nagar Haveli	98.13
11	Bihar	59.01
12	Delhi	55.99
13	GOA	51.77
14	Daman and Diu	42.28
15	Assam	26.80
16	UT Chandigarh	2.66
17	SHREE CEMENT	0.07
18	Jharkhand	-4.31
19	Arunachal Pradesh	-7.18
20	Mizoram	-12.13
21	Pondicherry	-13.94
22	Nagaland	-13.98
23	Tripura	-15.87
24	Chattisgarh	-18.24
25	Meghalaya	-18.97
26	Manipur	-20.98
27	STERLITE	-38.02
28	NSPCL	-45.44
29	Sikkim	-56.31
30	AD HYDRO	-57.31
31	MAITHON POWER LTD	-64.56
32	DVC	-86.15
33	Rajasthan	-93.73
34	Uttarakhand	-136.67
35	Orissa	-143.67
36	LANKO_KONDAPALLY	-212.91
37	LANKO_AMK	-261.51
38	J & K	-307.43
39	JINDAL POWER	-455.55
40	KARCHAM WANGTOO	-480.10
41	Himachal Pradesh	-667.16
42	Gujarat	-768.91
43	MP	-771.73

* 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-16: DETAILS OF CONGESTION IN POWER EXCHANGES, SEPTEMBER 2011			
	Details of Congestion	IEX	PXIL
A	Unconstrained Cleared Volume* (MUs)	1322.12	84.46
B	Actual Cleared Volume and hence scheduled (MUs)	1307.70	81.45
C	Volume of electricity that could not be cleared and hence not scheduled because of congestion (MUs) (A-B)	14.42	3.00
D	Volume of electricity that could not be cleared as % to Actual Cleared Volume	1%	4%
E	Percentage of the time congestion occurred during the month (Number of hours congestion occurred/Total number of hours in the month)	30%	40%
F	Congestion occurrence (%) time block wise		
	0.00 - 6.00 hours	31%	29%
	6.00 - 12.00 hours	31%	29%
	12.00 - 18.00 hours	23%	28%
	18.00 - 24.00 hours	16%	15%
* This power would have been scheduled had there been no congestion.			

Source: IEX & PXIL