



Monthly Report on Short-term Transactions of Electricity in India

November, 2011



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Abbreviations

Abbreviation	Expanded Version
ACBIL	ACB India Limited
ACP	Area Clearing Price
ACV	Area Clearing Volume
AD HYDRO	AD Hydro Power Limited
BALCO	Bharat Aluminium Company Limited
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CGPL	Coastal Gujarat Power Ltd
DVC	Damodar Valley Corporation
IEX	Indian Energy Exchange Limited
JINDAL POWER	Jindal Power Limited
KARCHAM WANGTOO	Jaypee Karcham Hydro Corporation Limited
LANKO_AMK	Lanco Amarkantak Power Private Limited
LANKO_KONDAPALLY	Lanco Kondapalli Power Limited
MUs	Million Units
NEW Grid	North, East, North-East and Western Regional Grid
NLDC	National Load Despatch Centre
NSPCL	NTPC - SAIL Power Company Private Limited
PX	Power Exchange
PXIL	Power Exchange India Limited
RGPPL	Ratnagiri Gas and Power Private Limited
RLDC	Regional Load Despatch Centre
RTC	Round - the- Clock
SHREE CEMENT	Shree Cement Limited
SR Grid	Southern Regional Grid
STERLITE	Sterlite Energy Limited
UI	Unscheduled Interchange
UT	Union Territory

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 November 2011 is as under:

I: Volume of Short-term Transactions of Electricity

During the month of November 2011, total electricity generation excluding generation from renewable and captive power plants in India was 71039.98MUs (Table-1).

Of the total electricity generation, 6633.95 MUs (9.34%) were transacted through short-term, comprising of 3569.69 MUs (5.02%) through Bilateral (through traders and term-ahead contracts on Power Exchanges and directly between distribution companies), followed by 1944.93 MUs (2.74%) through UI and 1119.33 MUs (1.58%) through day ahead collective transactions on Power Exchanges (IEX and PXIL) (Table-1 & Chart-2).

Of the total short-term transactions, Bilateral constitute 53.81% (36.59% through traders and term-ahead contracts on Power Exchanges and 17.22% directly between distribution companies) followed by 29.32% through UI and 16.87% 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 30.11.2011, of which only 16 have engaged in trading during

November 2011. Top 5 trading licenses had a share of 79.47% 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 0.1603 for the month of November 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 1086.82 MUs and 32.51 MUs respectively. The volume of total Buy bids and Sale bids was 2317.45 MUs and 1476.41 MUs respectively in IEX and 189.60 MUs and 54.28 MUs respectively in PXIL. The gap between the volume of buy bids and sale bids placed through power exchanges shows that there was more demand in IEX (1.57 times) and in PXIL (3.49 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 10.13 MU in IEX (Table-6) and 0.0 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 ₹4.29/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 ₹4.25/kWh, ₹6.80/kWh and ₹4.75/kWh respectively. Minimum and Maximum sale price was ₹2.96/kWh and ₹7.07/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 ₹2.50/kWh, ₹12.00/kWh and ₹4.08/kWh respectively in IEX and ₹2.44/kWh, ₹15.00/kWh and ₹4.09/kWh respectively in PXIL (Table-5).

The weighted average price of electricity transacted in term-ahead market through the weekly contracts in IEX was ₹4.26/kWh (Table 6).

(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 ₹4.81/kWh in the NEW Grid and ₹4.92/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 53.20% of the volume are Gujarat, Jindal Power Limited, Chattisgarh, Punjab and Delhi. Top 5 regional entities purchasing 61.31% of the volume are Maharashtra, Tamil Nadu, Rajasthan, Madhya Pradesh and Uttar Pradesh (Table-9 & 10).

Of the total Power Exchange transactions, top 5 regional entities selling 58.89% of the volume are Chattisgarh, Karnataka, West Bengal, Delhi and Gujarat. Top 5 regional entities purchasing 74.88% of the volume are Madhya Pradesh, Tamil Nadu, Andhra Pradesh, Maharashtra and Gujarat (Table-11 & 12).

Of the total UI transactions, top 5 regional entities under drawing 48.45% of the volume are Delhi, Gujarat, Uttar Pradesh, Damodar Valley Corporation and West Bengal. Top 5 regional entities overdrawing 47.61% of the volume are Rajasthan, Madhya Pradesh, Punjab, Maithon Power Ltd. and Chattisgarh (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 Gujarat, Jindal Power Ltd, Delhi, Chattisgarh and Lanco Amarkantak Power (P) Ltd and top 5 regional entities purchasing electricity are Maharashtra, Madhya Pradesh, Tamil Nadu, Rajasthan and Uttar 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 November 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 9% and 12% 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 47% in IEX and 50% 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 9.34%.
- Of the total short-term transactions of electricity, 53.81% transacted through bilateral (through traders and term ahead contracts on power exchanges and directly by distribution companies) followed by 29.32% through UI and 16.87% through Power Exchanges.
- Top 5 trading licenses are having share of 79.47% in the total volume traded by all the trading licensees.
- The Herfindahl Hirschman Index computed for volume of electricity traded by trading licensees was 0.1603 indicates moderate concentration of market power.
- The price of electricity transacted through Trading Licensees (₹4.29/kWh) was slightly high when compared with the price of electricity transacted through Power Exchanges (₹4.08/kWh in IEX and ₹4.09/kWh in PXIL).
- The price of electricity transacted through UI was ₹4.81/kWh in the NEW Grid and ₹4.92/kWh in the SR Grid.
- The gap between the volume of sale bids and buy bids placed through power exchanges shows that there was more demand in IEX (1:1.57) and in PXIL (1:3.49) when compared with the supply offered through these exchanges.
- Top 5 regional entities selling electricity are Gujarat, Jindal Power Ltd, Delhi, Chattisgarh and Lanco Amarkantak Power (P) Ltd and top 5 regional entities purchasing electricity are Maharashtra, Madhya Pradesh, Tamil Nadu, Rajasthan and Uttar Pradesh.
- The volume of electricity that could not be cleared due to congestion was about 9% and 12% of the actual cleared volume in IEX and PXIL, respectively. In percentage of time terms, congestion occurred 47% of the time (341 hrs in the month) in IEX and 50% of the time (358 hrs in the month) in PXIL.

Format-1: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY IN INDIA (MUs), NOVEMBER 2011						Total Electricity Generation (MUs) as given at CEA Website*
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-Nov-11	76.94	26.02	26.76	0.34	71.101	2376.16
2-Nov-11	76.89	26.00	29.46	0.89	71.345	2366.22
3-Nov-11	77.14	28.33	33.04	1.86	74.065	2385.72
4-Nov-11	78.11	36.69	32.53	1.22	70.472	2466.06
5-Nov-11	76.97	35.93	40.24	1.39	61.915	2482.76
6-Nov-11	76.51	34.16	39.62	2.32	72.609	2453.35
7-Nov-11	76.60	32.57	34.04	0.80	68.089	2342.34
8-Nov-11	76.17	36.84	38.60	0.96	69.688	2414.25
9-Nov-11	76.54	36.84	41.94	2.08	66.366	2378.79
10-Nov-11	76.54	35.98	40.01	1.76	63.826	2397.15
11-Nov-11	77.06	35.99	36.67	0.74	64.308	2388.98
12-Nov-11	77.82	36.84	37.18	1.46	64.380	2388.90
13-Nov-11	78.26	47.40	35.01	0.88	68.292	2361.78
14-Nov-11	77.93	47.25	33.08	0.32	63.981	2392.11
15-Nov-11	77.83	42.45	37.06	0.65	61.570	2391.44
16-Nov-11	81.90	42.67	33.89	0.60	61.235	2381.40
17-Nov-11	75.44	43.27	33.64	1.88	63.769	2380.40
18-Nov-11	78.89	42.57	36.50	0.68	60.781	2382.72
19-Nov-11	85.61	42.54	37.67	1.15	67.225	2376.03
20-Nov-11	84.49	39.59	36.49	2.24	71.730	2317.30
21-Nov-11	88.43	42.39	39.22	0.31	61.865	2322.34
22-Nov-11	89.49	39.48	41.13	0.98	56.088	2341.84
23-Nov-11	81.82	36.57	36.66	0.56	57.246	2316.92
24-Nov-11	83.16	40.61	36.67	0.62	55.777	2320.21
25-Nov-11	90.68	47.10	42.91	1.01	62.956	2301.72
26-Nov-11	90.62	44.94	36.89	0.86	66.508	2296.63
27-Nov-11	87.54	40.80	32.87	1.09	69.576	2255.64
28-Nov-11	83.87	33.50	35.00	0.44	58.830	2315.77
29-Nov-11	83.76	33.13	34.35	0.85	63.914	2369.54
30-Nov-11	84.44	33.72	37.67	1.54	55.420	2375.51
Total	2427.47	1142.22	1086.82	32.51	1944.93	71039.98
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), NOVEMBER 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-Nov-11	2.87	5.00	3.53	4.30	12.00	6.13	1.09	6.38	2.79	1.71	12.22	4.37
2-Nov-11	3.20	4.50	3.68	3.17	8.50	4.09	1.55	12.22	3.73	1.71	12.22	4.95
3-Nov-11	3.00	4.51	3.54	2.49	9.51	3.43	1.24	12.22	3.74	1.24	12.22	4.15
4-Nov-11	2.90	4.60	3.28	3.10	8.00	3.86	0.93	7.79	3.22	0.47	12.22	4.61
5-Nov-11	3.00	3.66	3.24	3.15	7.00	3.69	0.00	8.26	3.97	1.71	12.22	4.08
6-Nov-11	2.82	3.91	3.18	2.99	5.00	3.05	0.16	12.22	3.54	1.40	12.22	4.19
7-Nov-11	3.00	4.50	3.55	3.00	5.00	3.39	1.40	12.22	4.61	1.40	12.22	5.34
8-Nov-11	3.07	4.80	3.78	3.10	7.00	3.72	1.55	12.22	3.74	0.93	12.22	4.44
9-Nov-11	3.00	4.85	3.83	2.49	6.00	3.65	1.24	12.22	4.54	2.64	12.22	5.40
10-Nov-11	2.90	5.51	3.65	3.00	7.00	3.75	1.55	12.22	5.37	1.71	12.22	5.96
11-Nov-11	3.20	5.09	3.99	3.10	8.00	4.29	1.86	12.22	5.56	2.33	12.22	5.85
12-Nov-11	3.26	7.00	4.14	2.44	9.51	4.20	2.48	12.22	5.19	2.48	12.22	5.64
13-Nov-11	3.20	8.00	4.38	3.40	11.00	4.38	1.71	12.22	4.28	0.62	8.26	5.02
14-Nov-11	3.32	8.50	4.59	2.48	11.00	4.96	2.33	12.22	6.07	1.55	12.22	5.42
15-Nov-11	3.50	6.00	4.66	3.35	9.51	4.72	2.02	12.22	5.43	1.86	12.22	5.28
16-Nov-11	3.55	6.00	4.76	3.35	8.00	5.34	2.48	12.22	5.62	0.00	12.22	4.62
17-Nov-11	3.70	7.00	5.11	4.00	5.51	4.82	1.71	12.22	5.14	2.17	12.22	5.97
18-Nov-11	3.29	5.51	4.68	4.00	5.66	4.71	2.02	12.22	5.59	0.62	12.22	5.96
19-Nov-11	3.31	5.51	4.65	3.50	9.01	4.73	1.24	12.22	5.36	0.93	12.22	5.36
20-Nov-11	3.00	5.75	4.13	2.48	7.01	4.14	1.40	12.22	4.53	0.00	7.79	4.51
21-Nov-11	2.80	6.50	4.20	2.48	9.51	3.91	2.02	12.22	6.16	0.47	12.22	5.22
22-Nov-11	3.00	7.51	4.29	2.69	9.01	4.31	2.02	12.22	5.82	0.47	12.22	4.84
23-Nov-11	3.10	6.01	4.40	3.10	15.00	4.18	1.86	12.22	5.39	0.93	17.46	6.34
24-Nov-11	2.99	7.50	4.52	3.15	7.01	4.04	0.93	12.22	5.67	2.02	17.46	6.87
25-Nov-11	3.01	10.51	4.39	3.10	7.20	4.44	1.71	17.46	6.49	0.47	8.26	4.35
26-Nov-11	3.11	12.00	4.46	3.10	10.00	4.20	0.93	12.22	5.02	0.00	12.22	3.36
27-Nov-11	3.00	7.00	4.05	3.10	14.01	4.24	0.47	8.26	3.04	0.00	8.26	2.86
28-Nov-11	2.88	10.00	3.97	2.88	12.50	4.47	0.62	12.22	4.50	0.00	8.26	3.78
29-Nov-11	2.50	9.00	3.97	2.68	12.00	4.44	1.24	12.22	3.95	0.93	7.79	4.06
30-Nov-11	2.50	9.01	3.84	3.00	12.00	4.22	0.62	12.22	6.11	0.93	12.22	4.90
	2.50#	12.00#	4.08	2.44#	15.00#	4.09	0.00#	17.46#	4.81	0.00#	17.46#	4.92
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), NOVEMBER 2011

Name of the State/UT/Other Regional Entity	Through Bilateral			Through Power Exchange			Through UI with Regional Grid			Total Net***
	Sale	Purchase	Net**	Sale	Purchase	Net**	Export (Under Drawl)	Import (Over Drawl)	Net**	
Punjab	338.61	0.00	-338.61	0.30	83.34	83.04	36.77	147.00	110.23	-145.34
Haryana	188.68	118.70	-69.98	0.86	16.09	15.23	88.02	44.43	-43.59	-98.34
Rajasthan	74.82	377.34	302.52	60.97	29.91	-31.06	15.89	221.08	205.19	476.66
Delhi	334.19	78.46	-255.72	94.50	2.73	-91.77	255.32	2.65	-252.67	-600.16
Uttar Pradesh	0.00	316.05	316.05	0.00	0.00	0.00	147.41	88.23	-59.18	256.87
Uttarakhand	0.00	216.13	216.13	0.54	0.17	-0.37	12.81	36.14	23.33	239.08
Himachal Pradesh	12.39	97.29	84.90	26.11	0.00	-26.11	29.57	31.29	1.71	60.51
J & K	48.25	125.62	77.37	0.54	0.00	-0.54	11.47	69.11	57.64	134.46
UT Chandigarh	7.20	0.00	-7.20	4.47	0.70	-3.76	6.18	1.77	-4.41	-15.37
MP	0.00	354.86	354.86	8.66	241.79	233.13	61.94	211.34	149.40	737.39
Maharashtra	19.93	683.05	663.12	72.13	117.12	44.98	78.16	119.22	41.05	749.16
Gujarat	547.10	0.00	-547.10	91.81	101.72	9.91	169.83	54.30	-115.53	-652.72
Chattisgarh	350.72	44.76	-305.96	181.87	0.00	-181.87	9.71	124.57	114.86	-372.97
Daman and Diu	0.00	0.00	0.00	0.00	0.00	0.00	32.28	1.01	-31.27	-31.27
Dadra & Nagar Haveli	0.00	42.87	42.87	0.00	0.00	0.00	32.38	4.14	-28.24	14.62
Andhra Pradesh	62.93	40.60	-22.33	10.24	178.14	167.90	45.80	30.63	-15.17	130.41
Karnataka	21.20	38.95	17.75	159.17	29.25	-129.92	27.47	31.96	4.50	-107.68
Kerala	0.00	135.70	135.70	0.00	96.47	96.47	7.24	23.38	16.14	248.32
Tamilnadu	0.00	457.45	457.45	0.00	199.39	199.39	16.08	88.12	72.04	728.88
Pondicherry	0.00	0.00	0.00	0.00	0.00	0.00	49.69	0.07	-49.63	-49.63
West Bengal	178.53	31.72	-146.81	131.01	3.55	-127.46	90.41	34.79	-55.62	-329.89
Orissa	44.60	6.40	-38.20	13.66	0.00	-13.66	30.07	49.85	19.78	-32.08
Bihar	0.00	202.35	202.35	0.00	0.00	0.00	57.84	5.43	-52.41	149.93
Jharkhand	2.97	72.00	69.03	0.00	0.00	0.00	22.89	26.48	3.59	72.62
Sikkim	0.00	3.32	3.32	25.93	0.00	-25.93	5.24	1.76	-3.49	-26.10
DVC	95.33	56.82	-38.52	35.97	0.00	-35.97	109.88	41.40	-68.47	-142.97
Arunachal Pradesh	0.00	0.00	0.00	1.11	4.58	3.47	0.76	14.74	13.98	17.45
Assam	0.00	43.20	43.20	4.33	14.02	9.69	12.57	15.46	2.89	55.78
Manipur	0.00	0.00	0.00	0.00	0.00	0.00	4.97	5.45	0.48	0.48
Meghalaya	0.00	0.00	0.00	6.31	0.00	-6.31	1.14	22.66	21.52	15.21
Mizoram	0.00	0.00	0.00	4.20	0.00	-4.20	0.07	8.49	8.42	4.22
Nagaland	0.00	0.00	0.00	0.00	0.00	0.00	3.16	1.54	-1.62	-1.62
Tripura	4.34	0.00	-4.34	14.84	0.36	-14.49	4.57	1.05	-3.52	-22.34
GOA	0.00	26.06	26.06	25.06	0.00	-25.06	13.96	10.06	-3.90	-2.90
JINDAL POWER	542.88	0.00	-542.88	53.61	0.00	-53.61	22.07	6.07	-16.00	-612.49
LANCO_AMK	303.11	0.00	-303.11	9.26	0.00	-9.26	26.92	3.59	-23.33	-335.70
LANCO_KONDAPALLY	149.54	0.00	-149.54	18.49	0.00	-18.49	3.65	0.44	-3.21	-171.24
STERLITE	270.73	0.00	-270.73	45.76	0.00	-45.76	21.90	20.47	-1.43	-317.92
AD HYDRO	14.67	0.00	-14.67	0.00	0.00	0.00	0.74	0.84	0.10	-14.57
KARCHAM WANGTOO	163.67	0.00	-163.67	11.25	0.00	-11.25	6.97	3.49	-3.49	-178.41
SHREE CEMENT	72.48	0.00	-72.48	4.89	0.00	-4.89	8.41	5.23	-3.17	-80.54
NSPCL	0.00	0.00	0.00	0.00	0.00	0.00	2.37	0.58	-1.79	-1.79
MAITHON POWER LTD	124.17	0.00	-124.17	0.00	0.00	0.00	0.00	127.82	127.82	3.65
ACBIL	0.00	0.00	0.00	0.00	0.00	0.00	2.07	1.80	-0.27	-0.27
BALCO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02	1.02	1.02
RGPPL	0.00	0.00	0.00	0.00	0.00	0.00	8.51	0.16	-8.35	-8.35
CGPL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.10	6.10	6.10

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), NOVEMBER 2011				
Sr.No	Short-term transactions	Volume (MUs)	% to Volume of short-term transactions	% to Total Generation
1	Bilateral	3569.69	53.81%	5.02%
	(i) Through Traders and PXs	2427.47	36.59%	3.42%
	(ii) Direct	1142.22	17.22%	1.61%
2	Through Power Exchanges	1119.33	16.87%	1.58%
	IEX	1086.82	16.38%	1.53%
	PXIL	32.51	0.49%	0.05%
3	Through UI	1944.93	29.32%	2.74%
	Total	6633.95	100.00%	9.34%
	Total Generation	71039.98	—	—

Source: NLDC

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

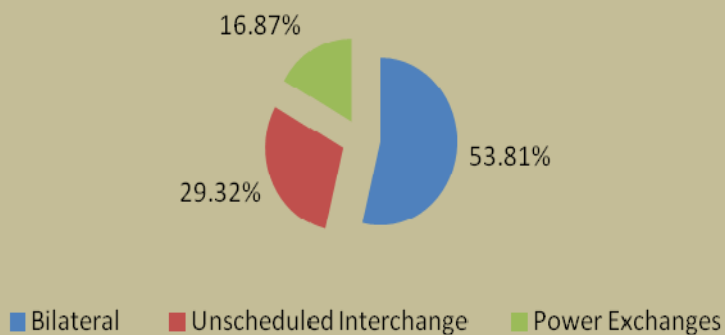


Chart-2: Volume of Various Kinds of Electricity Transactions in Total Electricity Generation, November 2011

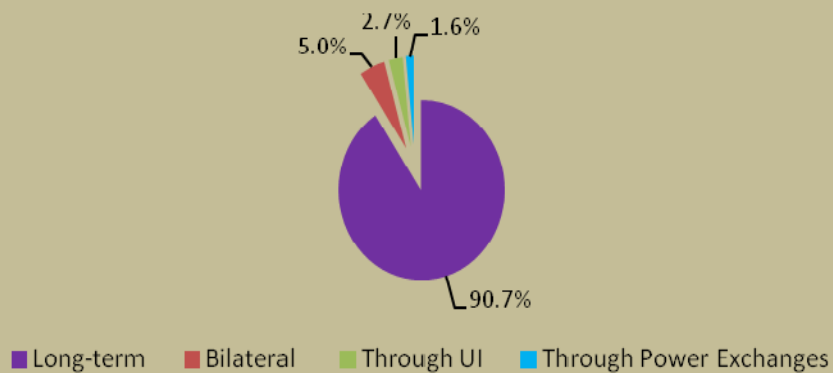


Chart-3: Volume of Short-term Transactions of Electricity, November 2011 (Day-wise)

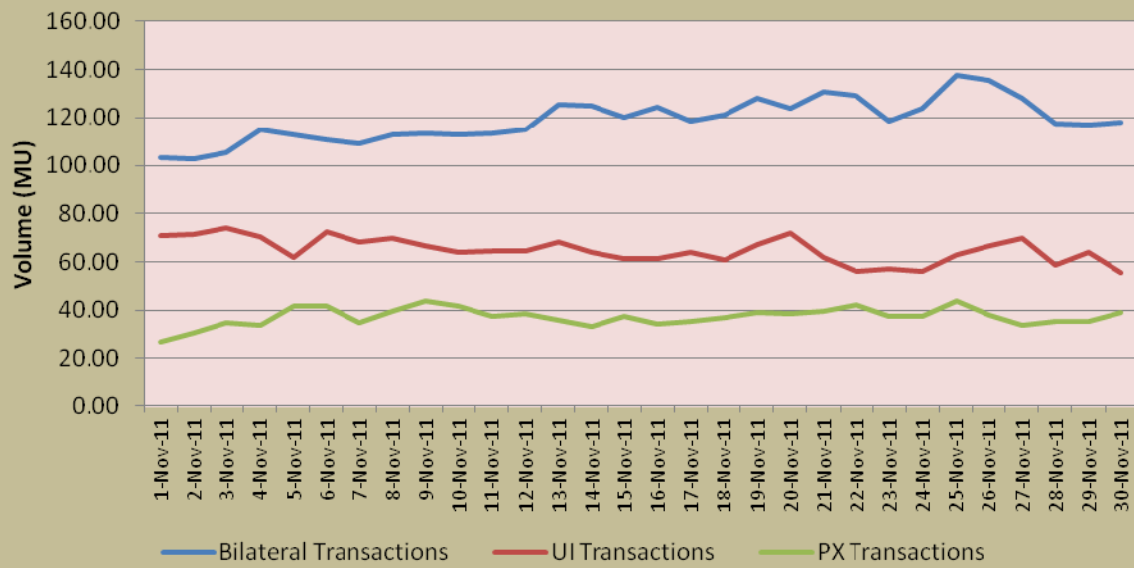


Table-2: PERCENTAGE SHARE OF ELECTRICITY TRANSACTED BY TRADING LICENSEES, NOVEMBER 2011

Sr.No	Name of the Trading Licensee	% Share in total Volume transacted by Trading Licensees	Herfindahl-Hirschman Index
1	PTC India Ltd	29.04%	0.0843
2	Tata Power Trading Company (P) Ltd	18.11%	0.0328
3	NTPC Vidyut Vyapar Nigam Ltd	13.70%	0.0188
4	National Energy Trading & Services Ltd	10.42%	0.0109
5	Reliance Energy Trading (P) Ltd	8.21%	0.0067
6	Shree Cement Ltd.	4.49%	0.0020
7	JSW Power Trading Company Ltd	4.11%	0.0017
8	Knowledge Infrastructure Systems (P) Ltd	3.87%	0.0015
9	GMR Energy Trading Ltd	2.42%	0.0006
10	Instinct Infra & Power Ltd.	2.35%	0.0006
11	Adani Enterprises Ltd	1.92%	0.0004
12	Global Energy (P) Ltd.	0.71%	0.0001
13	RPG Power Trading Company Ltd.	0.29%	0.0000
14	Jaiprakash Associate Ltd.	0.24%	0.0000
15	Jindal Power Trading Company Ltd.	0.09%	0.0000
16	Essar Electric Power Development Corp. Ltd.	0.02%	0.0000
	TOTAL	100.00%	0.1603
	Top 5 trading licensees	79.47%	
<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>			

Chart-4: Percentage Share of Electricity Transacted by Trading Licensees, November 2011

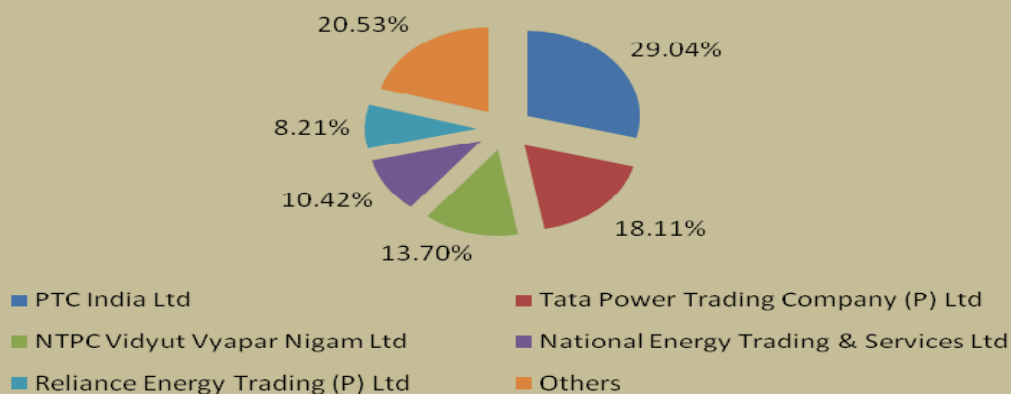


Table-3: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS, NOVEMBER 2011		
Sr.No		Sale Price of Traders (₹/kWh)
1	Minimum	2.96
2	Maximum	7.07
3	Weighted Average	4.29

Source: Information submitted by trading licensees

Table-4: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS (TIME-WISE), NOVEMBER 2011		
Sr.No	Period of Trade	Sale Price of Traders (₹/kWh)
1	RTC	4.25
2	PEAK	6.80
3	OFF PEAK	4.75

Source: Information submitted by trading licensees

Table-5: PRICE OF ELECTRICITY TRANSACTED THROUGH POWER EXCHANGES, NOVEMBER 2011			
Sr.No	ACP	Price in IEX (₹/kWh)	Price in PXIL (₹/kWh)
1	Minimum	2.50	2.44
2	Maximum	12.00	15.00
3	Weighted Average	4.08	4.09

Source: Information submitted by IEX and PXIL

Table-6: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF IEX, NOVEMBER 2011			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Day Ahead Contingency Contracts	0.08	7.00
2	Weekly Contracts	10.13	4.26
	Total	10.21	

Source: IEX

Table-7: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF PXIL, NOVEMBER 2011			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)
1	Weekly Contracts	0.00	0.00
	Total	0.00	

Source: PXIL

Table-8: PRICE OF ELECTRICITY TRANSACTED THROUGH UI, NOVEMBER 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	4.81	4.92

Source: NLDC

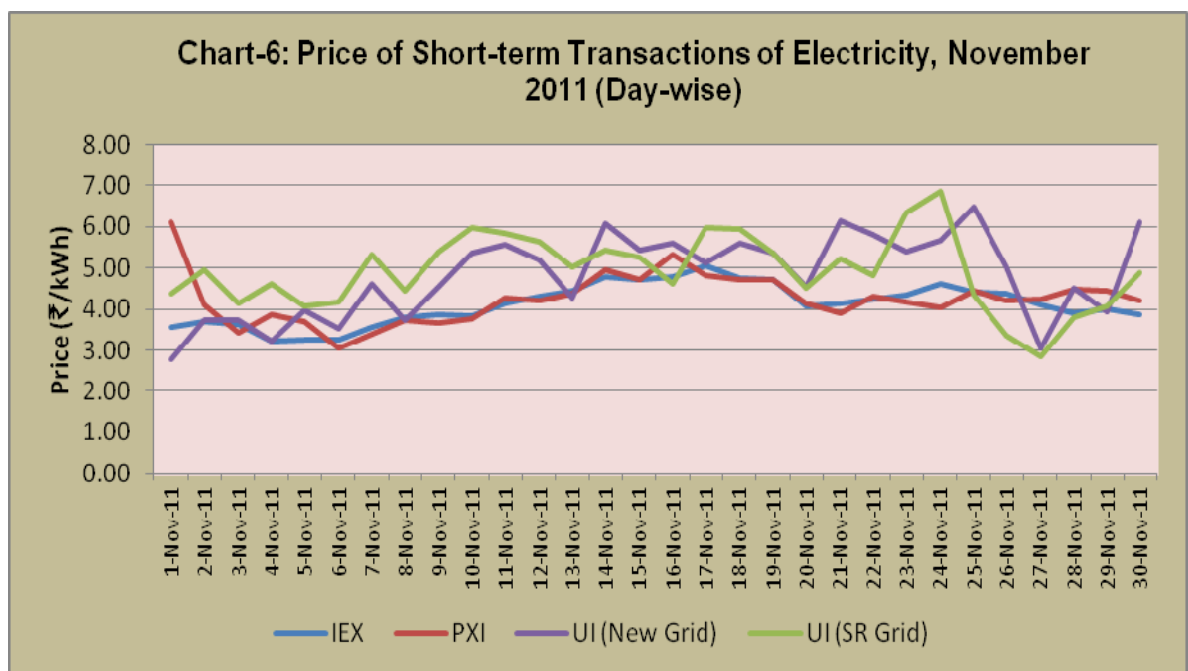
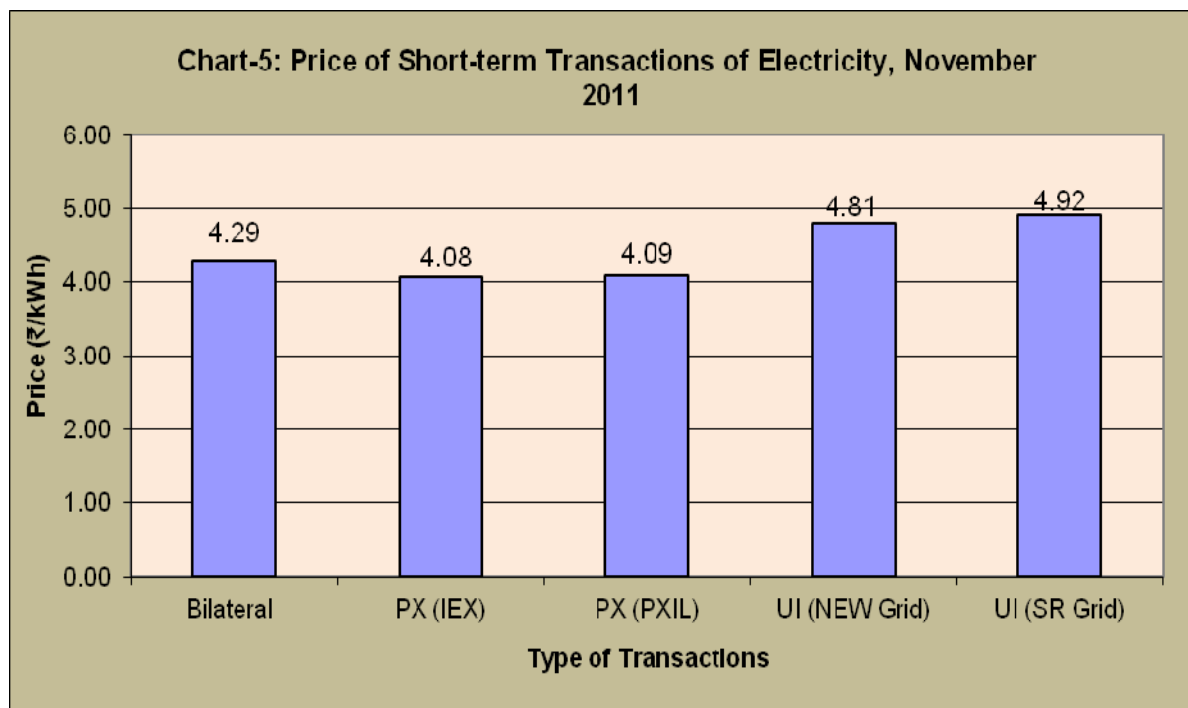


Table-9: VOLUME OF ELECTRICITY SALE THROUGH BILATERAL, NOVEMBER 2011		
Name of the State/UT/Other Regional Entity	Volume of sale (MUs)	% of Volume
Gujarat	547.10	13.77%
JINDAL POWER	542.88	13.66%
Chattisgarh	350.72	8.83%
Punjab	338.61	8.52%
Delhi	334.19	8.41%
LANKO_AMK	303.11	7.63%
STERLITE	270.73	6.81%
Haryana	188.68	4.75%
West Bengal	178.53	4.49%
KARCHAM WANGTOO	163.67	4.12%
LANKO_KONDAPALLY	149.54	3.76%
MAITHON POWER LTD	124.17	3.13%
DVC	95.33	2.40%
Rajasthan	74.82	1.88%
SHREE CEMENT	72.48	1.82%
Andhra Pradesh	62.93	1.58%
J & K	48.25	1.21%
Orissa	44.60	1.12%
Karnataka	21.20	0.53%
Maharashtra	19.93	0.50%
AD HYDRO	14.67	0.37%
Himachal Pradesh	12.39	0.31%
UT Chandigarh	7.20	0.18%
Tripura	4.34	0.11%
Jharkhand	2.97	0.07%
Total	3973.05	100.00%
Volume of sale by top 5 States	2113.50	53.20%

Table-10: VOLUME OF ELECTRICITY PURCHASE THROUGH BILATERAL, NOVEMBER 2011		
Name of the State/UT/Other Regional Entity	Volume of Purchase (MUs)	% of Volume
Maharashtra	683.05	19.13%
Tamilnadu	457.45	12.81%
Rajasthan	377.34	10.57%
MP	354.86	9.94%
Uttar Pradesh	316.05	8.85%
Uttarakhand	216.13	6.05%
Bihar	202.35	5.67%
Kerala	135.70	3.80%
J & K	125.62	3.52%
Haryana	118.70	3.33%
Himachal Pradesh	97.29	2.73%
Delhi	78.46	2.20%
Jharkhand	72.00	2.02%
DVC	56.82	1.59%
Chattisgarh	44.76	1.25%
Assam	43.20	1.21%
Dadra & Nagar Haveli	42.87	1.20%
Andhra Pradesh	40.60	1.14%
Karnataka	38.95	1.09%
West Bengal	31.72	0.89%
GOA	26.06	0.73%
Orissa	6.40	0.18%
Sikkim	3.32	0.09%
Total	3569.69	100.00%
Volume of sale by top 5 States	2188.75	61.31%

Table-11: VOLUME OF ELECTRICITY SALE THROUGH POWER EXCHANGES, NOVEMBER 2011		
Name of the State/UT/Other Regional Entity	Volume of Sale (MUs)	% of Volume
Chattisgarh	181.87	16.27%
Karnataka	159.17	14.24%
West Bengal	131.01	11.72%
Delhi	94.50	8.45%
Gujarat	91.81	8.21%
Maharashtra	72.13	6.45%
Rajasthan	60.97	5.45%
JINDAL POWER	53.61	4.80%
STERLITE	45.76	4.09%
DVC	35.97	3.22%
Himachal Pradesh	26.11	2.34%
Sikkim	25.93	2.32%
GOA	25.06	2.24%
LANKO_KONDAPALLY	18.49	1.65%
Tripura	14.84	1.33%
Orissa	13.66	1.22%
KARCHAM WANGTOO	11.25	1.01%
Andhra Pradesh	10.24	0.92%
LANKO_AMK	9.26	0.83%
MP	8.66	0.78%
Meghalaya	6.31	0.56%
SHREE CEMENT	4.89	0.44%
UT Chandigarh	4.47	0.40%
Assam	4.33	0.39%
Mizoram	4.20	0.38%
Arunachal Pradesh	1.11	0.10%
Haryana	0.86	0.08%
J & K	0.54	0.05%
Uttarakhand	0.54	0.05%
Punjab	0.30	0.03%
Total	1117.85	100.00%
Volume of sale by top 5 States	658.35	58.89%

Table-12: VOLUME OF ELECTRICITY PURCHASE THROUGH POWER EXCHANGES, NOVEMBER 2011		
Name of the State/UT/Other Regional Entity	Volume of Purchase (MUs)	% of Volume
MP	241.79	21.60%
Tamilnadu	199.39	17.81%
Andhra Pradesh	178.14	15.91%
Maharashtra	117.12	10.46%
Gujarat	101.72	9.09%
Kerala	96.47	8.62%
Punjab	83.34	7.45%
Rajasthan	29.91	2.67%
Karnataka	29.25	2.61%
Haryana	16.09	1.44%
Assam	14.02	1.25%
Arunachal Pradesh	4.58	0.41%
West Bengal	3.55	0.32%
Delhi	2.73	0.24%
UT Chandigarh	0.70	0.06%
Tripura	0.36	0.03%
Uttarakhand	0.17	0.01%
Total	1119.33	100.00%
Volume of purchase by top 5 States	838.16	74.88%

Table-13: VOLUME OF ELECTRICITY EXPORT THROUGH UI, NOVEMBER 2011		
Name of the State/UT/Other Regional Entity	Volume of Export (MUs)	% of Volume
Delhi	255.32	16.01%
Gujarat	169.83	10.65%
Uttar Pradesh	147.41	9.24%
DVC	109.88	6.89%
West Bengal	90.41	5.67%
Haryana	88.02	5.52%
Maharashtra	78.16	4.90%
MP	61.94	3.88%
Bihar	57.84	3.63%
Pondicherry	49.69	3.12%
Andhra Pradesh	45.80	2.87%
Punjab	36.77	2.31%
Dadra & Nagar Haveli	32.38	2.03%
Daman and Diu	32.28	2.02%
Orissa	30.07	1.89%
Himachal Pradesh	29.57	1.85%
Karnataka	27.47	1.72%
LANKO_AMK	26.92	1.69%
Jharkhand	22.89	1.43%
JINDAL POWER	22.07	1.38%
STERLITE	21.90	1.37%
Tamilnadu	16.08	1.01%
Rajasthan	15.89	1.00%
GOA	13.96	0.88%
Uttarakhand	12.81	0.80%
Assam	12.57	0.79%
J & K	11.47	0.72%
Chattisgarh	9.71	0.61%
RGPPL	8.51	0.53%
SHREE CEMENT	8.41	0.53%
Kerala	7.24	0.45%
KARCHAM WANGTOO	6.97	0.44%
UT Chandigarh	6.18	0.39%
Sikkim	5.24	0.33%
Manipur	4.97	0.31%
Tripura	4.57	0.29%
LANKO_KONDAPALLY	3.65	0.23%
Nagaland	3.16	0.20%
NSPCL	2.37	0.15%
ACBIL	2.07	0.13%
Meghalaya	1.14	0.07%
Arunachal Pradesh	0.76	0.05%
AD HYDRO	0.74	0.05%
Mizoram	0.07	0.00%
Total	1595.14	100.00%
Volume of Export by top 5 States	772.85	48.45%

Table-14: VOLUME OF ELECTRICITY IMPORT THROUGH UI, NOVEMBER 2011		
Name of the State/UT/Other Regional Entity	Volume of Import (MUs)	% of Volume
Rajasthan	221.08	12.65%
MP	211.34	12.10%
Punjab	147.00	8.41%
MAITHON POWER LTD	127.82	7.32%
Chattisgarh	124.57	7.13%
Maharashtra	119.22	6.82%
Uttar Pradesh	88.23	5.05%
Tamilnadu	88.12	5.04%
J & K	69.11	3.96%
Gujarat	54.30	3.11%
Orissa	49.85	2.85%
Haryana	44.43	2.54%
DVC	41.40	2.37%
Uttarakhand	36.14	2.07%
West Bengal	34.79	1.99%
Karnataka	31.96	1.83%
Himachal Pradesh	31.29	1.79%
Andhra Pradesh	30.63	1.75%
Jharkhand	26.48	1.52%
Kerala	23.38	1.34%
Meghalaya	22.66	1.30%
STERLITE	20.47	1.17%
Assam	15.46	0.88%
Arunachal Pradesh	14.74	0.84%
GOA	10.06	0.58%
Mizoram	8.49	0.49%
CGPL	6.10	0.35%
JINDAL POWER	6.07	0.35%
Manipur	5.45	0.31%
Bihar	5.43	0.31%
SHREE CEMENT	5.23	0.30%
Dadra & Nagar Haveli	4.14	0.24%
LANKO_AMK	3.59	0.21%
KARCHAM WANGTOO	3.49	0.20%
Delhi	2.65	0.15%
ACBIL	1.80	0.10%
UT Chandigarh	1.77	0.10%
Sikkim	1.76	0.10%
Nagaland	1.54	0.09%
Tripura	1.05	0.06%
BALCO	1.02	0.06%
Daman and Diu	1.01	0.06%
AD HYDRO	0.84	0.05%
NSPCL	0.58	0.03%
LANKO_KONDAPALLY	0.44	0.03%
RGPPL	0.16	0.01%
Pondicherry	0.07	0.00%
Total	1747.20	100.00%
Volume of Export by top 5 States	831.82	47.61%

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

Sr.No	Name of the State/UT/Other Regional Entity	Total volume of net short-term transactions of electricity*
1	Maharashtra	749.16
2	MP	737.39
3	Tamilnadu	728.88
4	Rajasthan	476.66
5	Uttar Pradesh	256.87
6	Kerala	248.32
7	Uttarakhand	239.08
8	Bihar	149.93
9	J & K	134.46
10	Andhra Pradesh	130.41
11	Jharkhand	72.62
12	Himachal Pradesh	60.51
13	Assam	55.78
14	Arunachal Pradesh	17.45
15	Meghalaya	15.21
16	Dadra & Nagar Haveli	14.62
17	CGPL	6.10
18	Mizoram	4.22
19	MAITHON POWER LTD	3.65
20	BALCO	1.02
21	Manipur	0.48
22	ACBIL	-0.27
23	Nagaland	-1.62
24	NSPCL	-1.79
25	GOA	-2.90
26	RGPPL	-8.35
27	AD HYDRO	-14.57
28	UT Chandigarh	-15.37
29	Tripura	-22.34
30	Sikkim	-26.10
31	Daman and Diu	-31.27
32	Orissa	-32.08
33	Pondicherry	-49.63
34	SHREE CEMENT	-80.54
35	Haryana	-98.34
36	Karnataka	-107.68
37	DVC	-142.97
38	Punjab	-145.34
39	LANKO_KONDAPALLY	-171.24
40	KARCHAM WANGTOO	-178.41
41	STERLITE	-317.92
42	West Bengal	-329.89
43	LANKO_AMK	-335.70
44	Chattisgarh	-372.97
45	Delhi	-600.16
46	JINDAL POWER	-612.49
47	Gujarat	-652.72

* 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, NOVEMBER 2011			
	Details of Congestion	IEX	PXIL
A	Unconstrained Cleared Volume* (MUs)	1186.35	36.48
B	Actual Cleared Volume and hence scheduled (MUs)	1090.10	32.51
C	Volume of electricity that could not be cleared and hence not scheduled because of congestion (MUs) (A-B)	96.24	3.97
D	Volume of electricity that could not be cleared as % to Actual Cleared Volume	9%	12%
E	Percentage of the time congestion occurred during the month (Number of hours congestion occurred/Total number of hours in the month)	47%	50%
F	Congestion occurrence (%) time block wise		
	0.00 - 6.00 hours	30%	28%
	6.00 - 12.00 hours	21%	22%
	12.00 - 18.00 hours	10%	12%
	18.00 - 24.00 hours	38%	38%
* This power would have been scheduled had there been no congestion.			

Source: IEX & PXIL