

# **MONTHLY REPORT ON SHORT-TERM TRANSACTIONS OF ELECTRICITY (March 2010)**

## **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. The analysis of the report for the month of March 2010 is as under:

## **I: Volume of Short-term Transactions of Electricity**

During the Month of March 2010, total electricity generation excluding generation from renewable and captive power plants in India was 70099.55 MUs (Table-1).

Of the total electricity generation, 6058.85 MUs (8.64%) were transacted through short-term, comprising of 3197.11 MUs (4.56%) through Bilateral (through traders and tem-ahead contracts on Power Exchanges and directly between distribution companies), followed by 2229.62 MUs (3.18%) through UI and 632.12 MUs (0.90%) through Power Exchanges (IEX and PXIL) (Table-1 & Chart-2).

Of the total short-term transactions, Bilateral constitute 52.77% (44.00% through traders and tem-ahead contracts on Power Exchanges and 8.77% direct between distribution companies) followed by 36.80% through UI and 10.43% through day ahead collective transactions over 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 31.3.2010, of which only 13 have engaged in trading during March 2010. Top 5 trading licenses had a share of 87.16% 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 0.18 indicates high concentration. The HHI computed for volume of electricity traded by trading licensees was 0.1870 shows high concentration/market power (Table-2).

The volume of electricity transacted through IEX and PXIL was 563.13 MUs and 68.99 MUs respectively. The volume of total Buy bids and Sale bids was 1324.92 MUs and 823.07 MUs respectively in IEX and 206.90 MUs and 182.00 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 (1.61 times) and in PXIL (1.14 times) when compared with the supply offered through these exchanges.

The volume of electricity transacted in the term-ahead contracts of power exchanges was 31.64 MU in IEX and 0.62 MU in PXIL (Table-5A&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 Rs.4.94/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 Rs.4.99, Rs.5.40 and Rs.4.73 respectively. Minimum and Maximum sale price was Rs.2.17 and Rs.7.43 respectively (Table-3 & 4).

(2) *Price of electricity transacted Through Power Exchange:* The Minimum, Maximum and Weighted Average Price has been computed for the volume transacted through IEX and PXIL separately. The Minimum, Maximum and Weighted Average Price was Rs.2.00, Rs.9.00 and Rs.5.58 respectively in IEX and Rs.0.40, Rs.8.22 and Rs.6.47 respectively in PXIL (Table-5).

The weighted average price of electricity transacted in the term-ahead contracts of power exchanges was Rs.5.61/kWh in IEX and Rs.7.50/kWh in PXIL (Table-5A&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 Rs.4.85 in the NEW Grid and Rs.7.31 in the SR Grid. Minimum and Maximum price of UI was Rs.0.00 and Rs.10.29 respectively in the New Grid and Rs.0.00 and Rs.10.29 respectively in the SR Grid (Table-6).

The weighted average price/average 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 Entity<sup>1</sup>-Wise):**

Of the total bilateral transactions, top 5 regional entities selling 62.72% of the volume are Chattisgarh, Gujarat, Jindal Power Ltd, Karnataka and Delhi and top 5 regional entities purchasing 73.79% of the volume are Tamil Nadu, Rajasthan, Karnataka, Andhra Pradesh, and Maharashtra (Table-7 & 8).

Of the total Power Exchange transactions, top 5 regional entities selling 66.49% of the volume are Gujarat, Madhya Pradesh, Karnataka, Chattisgarh and Delhi and top 5 regional entities purchasing 84.66% of the volume are Rajasthan, Tamil Nadu, Maharashtra, Delhi and Andhra Pradesh (Table-9 & 10).

Of the total UI transactions, top 5 regional entities underdrawing 56.24% of the volume are Gujarat, Damodar vally Corporation, Delhi, Lanco Amarkant Ltd and Madhya Pradesh top 5 regional entities overdrawing 66.55% of the volume are Haryana, Punjab, Uttar Pradesh, Tamil Nadu and Maharashtra, (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 was shown in Table-13. Top 5 regional entities selling electricity are Gujarat, Chattisgarh, Jindal Power Ltd, Damodar vally Corporation and Delhi and top 5 regional entities purchasing electricity are Tamil Nadu, Rajasthan, Maharashtra, Haryana and Uttar Pradesh.

### **IV: Congestion<sup>2</sup> on Inter-state Transmission for Day-Ahead Market on Power Exchanges:**

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<sup>1</sup> 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.

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”<sup>3</sup>.

In the month of March 2010, 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 of unconstrained cleared volume (volume of electricity that would have been scheduled, had there been no congestion) and actual cleared volume. The volume of electricity that could not be cleared due to congestion was about 22% of the actual cleared volume in IEX and about 81% of the actual cleared volume in PXIL.

In both the power exchanges congestion occurred in the Southern Region. In IEX congestion occurred about 78% of the hourly time blocks whereas in PXIL it occurred about 76% of the hourly time blocks. Congestion occurred in most number of times during 0.00-6.00 hours of the day in both the exchanges.

## **V: Inferences:**

- The percentage of short-term transactions of electricity to total electricity generation was 8.64%.
- Of the total short-term transactions of electricity, 52.77% transacted through bilateral (through traders and term ahead contracts on power exchanges and directly by

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

<sup>3</sup> “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.

distribution companies) followed by 36.80% through UI and 10.43% through Power Exchanges.

- Top 5 trading licenses are having share of 87.16% in the total volume traded by all the trading licensees.
- The price of electricity transacted through Power Exchanges was relatively high (Rs.5.58/KWh in IEX and Rs.6.47/KWh in PXIL) when compared with the price of electricity transacted through Trading Licensees (Rs.4.94/KWh) and the price of electricity transacted through UI (Rs.4.85/KWh in NEW Grid and Rs.7.31/KWh in SR Grid).
- The Herfindahl Hirschman Index computed for volume of electricity traded by trading licensees was 0.1870 shows high concentration/market power.
- The gap between the volume of buy bids and sale bids placed through power exchanges shows that there was more demand in IEX (1.61 times) and in PXIL (1.14 times) when compared with the supply offered through these exchanges.
- Top 5 regional entities selling electricity are Gujarat, Chattisgarh, Jindal Power Ltd, Damodar vally Corporation and Delhi and top 5 regional entities purchasing electricity are Tamil Nadu, Rajasthan, Maharashtra, Haryana and Uttar Pradesh.
- Congestion occurred in both the power exchanges in the Southern Region. In IEX congestion occurred about 78% of the hourly time blocks whereas in PXIL it occurred about 76% of the hourly time blocks. Congestion occurred in most number of times during 0.00-6.00 hours of the day in both the exchanges.
- Volume of electricity that could not be cleared due to congestion was about 22% of the actual cleared volume in IEX and about 81% of the actual cleared volume in PXIL.

VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (ALL INDIA) (MUs)						Total Electricity Generation (MUs) as given at CEA Website*
Month: Mar 2010						
Date	Bilateral		Power Exchange (Market Clearing Volume of day ahead market)		Unscheduled Interchange (Over Drawl+Under Generation)	
	Through Traders and PXs**	Direct	IEX	PXI		
1-Mar-10	91.25	12.16	10.42	0.79	92.00	2098.59
2-Mar-10	91.24	12.91	13.30	1.16	83.99	2181.99
3-Mar-10	94.10	15.39	13.62	0.48	89.31	2230.79
4-Mar-10	94.22	15.39	16.40	1.11	71.68	2227.20
5-Mar-10	100.05	15.83	13.58	0.84	65.84	2243.88
6-Mar-10	91.08	15.39	14.73	1.66	75.05	2226.30
7-Mar-10	93.17	13.16	16.60	2.48	79.92	2213.46
8-Mar-10	89.46	16.78	14.33	1.20	75.40	2259.06
9-Mar-10	88.30	16.78	16.34	2.11	70.80	2259.66
10-Mar-10	88.08	16.78	14.98	2.52	69.52	2268.73
11-Mar-10	91.27	19.68	16.12	1.67	70.35	2251.67
12-Mar-10	91.28	20.35	15.90	2.17	72.55	2246.29
13-Mar-10	91.20	20.31	16.78	1.69	72.81	2247.90
14-Mar-10	87.41	17.13	22.50	2.60	82.85	2234.36
15-Mar-10	86.71	19.56	19.32	2.52	62.55	2240.34
16-Mar-10	86.96	17.70	17.59	0.81	66.48	2270.51
17-Mar-10	88.03	19.77	14.90	1.66	59.62	2268.38
18-Mar-10	88.22	17.38	12.34	1.71	58.53	2235.98
19-Mar-10	90.04	17.57	12.58	1.60	59.27	2263.71
20-Mar-10	90.65	19.24	11.53	1.00	73.46	2283.96
21-Mar-10	86.01	16.04	21.57	1.33	75.89	2258.71
22-Mar-10	85.46	18.50	22.74	2.80	63.46	2294.24
23-Mar-10	82.26	18.50	20.72	3.26	64.70	2290.39
24-Mar-10	81.62	18.75	23.32	2.97	66.35	2302.99
25-Mar-10	80.37	18.75	23.24	3.08	68.26	2336.38
26-Mar-10	73.27	18.53	24.69	3.42	62.47	2342.12
27-Mar-10	73.24	16.92	25.38	4.53	65.93	2328.03
28-Mar-10	73.65	16.42	24.22	3.84	72.66	2255.97
29-Mar-10	72.78	16.53	27.67	4.15	80.73	2360.87
30-Mar-10	73.10	16.53	23.73	4.78	78.49	2302.50
31-Mar-10	71.36	16.53	21.98	3.04	78.71	2274.59
Total	2665.84	531.27	563.13	68.99	2229.62	70099.55

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.

PRICE OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (Rs/KWh)												
Month: Mar 2010												
Market Segment	Day ahead market of IEX			Day ahead market of PXIL			Under Drawl/Over Drawl from the Grid (UI)					
Date	Minimum MCP	Maximum MCP	Weighted Average*	Minimum MCP	Maximum MCP	Weighted Average*	NEW Grid			SR Grid		
							Minimum Price	Maximum Price	Average Price**	Minimum Price	Maximum Price	Average Price**
1-Mar-10	2.40	5.25	3.40	0.00	7.00	6.47	0.00	3.60	1.40	0.00	10.29	5.73
2-Mar-10	2.00	6.90	4.39	0.00	7.00	6.55	0.00	4.80	1.69	0.96	10.29	6.03
3-Mar-10	3.00	6.00	4.17	0.40	7.00	6.71	0.00	6.16	3.06	3.96	10.29	7.18
4-Mar-10	2.50	6.00	4.24	2.00	7.00	4.95	2.64	10.29	4.98	4.20	10.29	9.12
5-Mar-10	3.70	6.00	5.15	2.50	7.10	4.39	2.28	10.29	5.37	2.40	10.29	8.46
6-Mar-10	4.50	6.50	5.45	1.00	7.12	4.07	2.40	10.29	5.18	0.72	10.29	7.01
7-Mar-10	3.40	6.00	5.04	3.00	7.12	4.36	0.60	6.67	3.48	0.24	10.29	5.91
8-Mar-10	4.50	7.00	5.64	3.00	7.12	6.03	1.92	7.18	4.28	3.72	10.29	7.50
9-Mar-10	4.15	7.00	5.82	2.50	7.12	5.80	2.40	10.29	5.60	3.60	10.29	8.81
10-Mar-10	4.15	7.00	6.01	2.50	7.00	5.85	1.56	10.29	5.57	3.48	10.29	8.05
11-Mar-10	4.50	7.00	6.19	2.50	7.12	5.36	2.52	10.29	5.68	2.16	10.29	7.46
12-Mar-10	4.50	7.00	6.29	2.50	7.12	5.54	2.04	10.29	4.97	0.96	10.29	6.55
13-Mar-10	3.50	6.10	4.94	2.50	7.12	5.25	1.68	10.29	5.84	0.24	10.29	7.05
14-Mar-10	3.07	6.00	4.83	2.50	7.03	5.34	0.48	10.29	3.89	1.68	10.29	6.14
15-Mar-10	3.70	7.00	5.53	3.15	7.10	6.07	2.64	10.29	6.57	3.00	10.29	6.72
16-Mar-10	3.90	7.00	5.78	2.50	7.30	6.14	3.48	10.29	7.00	2.16	10.29	8.59
17-Mar-10	4.21	7.01	6.15	3.70	7.33	6.19	2.52	10.29	7.68	3.72	10.29	8.20
18-Mar-10	5.10	7.25	6.54	3.70	7.00	6.91	3.60	10.29	8.29	3.00	10.29	7.65
19-Mar-10	5.50	7.60	6.79	4.90	7.25	6.72	3.12	10.29	7.14	3.24	10.29	8.82
20-Mar-10	6.54	9.00	7.93	2.50	7.65	7.23	1.68	10.29	5.22	3.24	10.29	8.23
21-Mar-10	5.00	7.50	6.28	2.50	8.00	7.21	1.44	6.50	3.99	1.92	10.29	6.02
22-Mar-10	5.00	7.60	6.74	2.50	8.00	7.44	1.92	10.29	5.48	3.00	10.29	7.29
23-Mar-10	4.19	8.00	6.77	5.01	7.90	7.26	1.20	10.29	5.98	3.96	10.29	8.88
24-Mar-10	3.24	8.10	6.54	5.00	7.90	7.19	1.68	10.29	5.80	4.44	10.29	9.33
25-Mar-10	4.50	8.01	6.89	4.00	8.00	7.27	0.00	10.29	4.52	4.56	10.29	9.09
26-Mar-10	4.50	8.01	6.73	5.00	8.00	7.41	1.68	10.29	5.71	2.64	10.29	8.28
27-Mar-10	4.49	8.19	6.60	4.40	8.22	7.33	0.60	10.29	4.27	3.24	10.29	6.64
28-Mar-10	3.33	7.50	5.08	3.50	8.00	7.09	0.00	6.50	3.31	3.24	10.29	6.70
29-Mar-10	4.20	8.10	6.16	3.65	8.00	7.28	0.36	5.82	3.15	2.64	10.29	5.88
30-Mar-10	3.00	8.00	5.09	3.50	8.00	7.27	0.00	5.82	2.58	1.80	10.29	5.09
31-Mar-10	2.70	5.74	4.13	3.00	7.90	5.55	0.48	6.84	2.80	1.32	6.84	4.11
	<b>2.00</b>	<b>9.00</b>	<b>5.58</b>	<b>0.40</b>	<b>8.22</b>	<b>6.47</b>	<b>0.00</b>	<b>10.29</b>	<b>4.85</b>	<b>0.00</b>	<b>10.29</b>	<b>7.31</b>
Source: Data on price of PX transactions from IEX and PXIL and data on UI Price from NLDC												
* Weighted average price computed based on Market Clearing Volume (MCV) and Market Clearing Price (MCP) for each hour of the day												
** 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: Mar 2010										
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	243.64	59.01	-184.63	3.40	13.73	10.33	12.07	335.37	323.30	149.00
Haryana	141.40	30.24	-111.16	1.27	24.91	23.64	1.22	425.34	424.11	336.59
Rajasthan	12.94	442.44	429.50	7.34	198.92	191.58	80.43	98.13	17.70	638.78
Delhi	288.17	191.88	-96.28	60.70	43.26	-17.44	206.79	13.43	-193.36	-307.08
Uttar Pradesh	2.07	31.04	28.97	0.00	8.92	8.92	39.92	252.97	213.06	250.95
Uttarakhand	0.75	49.60	48.85	2.22	0.00	-2.22	18.32	48.61	30.29	76.92
Himachal Pradesh	20.75	102.97	82.22	38.44	0.00	-38.44	29.71	39.30	9.58	53.36
J & K	99.67	28.80	-70.87	0.00	0.00	0.00	29.22	49.25	20.02	-50.85
UT Chandigarh	0.00	0.00	0.00	0.00	0.00	0.00	2.44	18.65	16.22	16.22
MP	34.69	52.30	17.61	91.11	0.07	-91.04	129.88	17.60	-112.28	-185.71
Maharashtra	33.50	234.28	200.78	14.14	74.81	60.67	49.93	138.31	88.38	349.82
Gujarat	457.68	1.13	-456.54	135.40	10.64	-124.76	352.72	4.48	-348.24	-929.55
Chattisgarh	472.47	8.93	-463.55	64.78	0.00	-64.78	90.70	40.79	-49.90	-578.23
Daman and Diu	0.00	0.00	0.00	0.00	0.00	0.00	53.52	0.10	-53.42	-53.42
Dadra & Nagar Haveli	0.00	0.00	0.00	0.00	0.00	0.00	45.05	0.29	-44.76	-44.76
Andhra Pradesh	65.93	277.07	211.14	6.47	25.10	18.63	69.22	58.95	-10.27	219.51
Karnataka	366.55	395.22	28.68	68.30	0.04	-68.25	16.96	40.53	23.57	-16.01
Kerala	150.08	78.03	-72.05	0.00	23.49	23.49	11.94	11.18	-0.76	-49.31
Tamilnadu	0.00	921.98	921.98	0.00	193.08	193.08	14.50	179.35	164.84	1279.91
Pondicherry	0.00	0.00	0.00	0.00	0.00	0.00	7.81	2.71	-5.10	-5.10
West Bengal	92.24	68.45	-23.79	31.81	1.74	-30.07	36.92	42.40	5.49	-48.37
Orissa	30.08	0.00	-30.08	4.61	0.00	-4.61	19.88	48.50	28.62	-6.07
Bihar	0.00	0.00	0.00	0.00	0.00	0.00	67.67	11.95	-55.72	-55.72
Jharkhand	0.00	74.40	74.40	0.00	0.00	0.00	28.02	7.53	-20.49	53.91
Sikkim	6.96	0.00	-6.96	10.37	0.00	-10.37	3.39	9.89	6.50	-10.83
DVC	128.64	0.00	-128.64	0.00	0.00	0.00	241.93	2.43	-239.50	-368.14
Arunachal Pradesh	0.15	0.00	-0.15	0.77	0.92	0.16	3.67	5.99	2.32	2.33
Assam	0.00	19.20	19.20	0.00	0.00	0.00	33.74	5.90	-27.84	-8.64
Manipur	0.00	0.00	0.00	0.00	0.00	0.00	4.11	6.25	2.14	2.14
Meghalaya	0.00	10.69	10.69	2.47	12.34	9.87	5.09	9.30	4.22	24.77
Mizoram	0.00	0.00	0.00	0.00	0.14	0.14	1.18	7.28	6.09	6.23
Nagaland	0.00	0.00	0.00	0.00	0.00	0.00	2.23	8.33	6.10	6.10
Tripura	3.13	0.00	-3.13	2.36	0.00	-2.36	7.39	2.73	-4.66	-10.15
GOA	0.00	0.00	0.00	0.35	0.00	-0.35	33.70	3.66	-30.04	-30.38
JINDAL POWER	414.65	0.00	-414.65	40.75	0.00	-40.75	17.79	21.65	3.85	-451.55
LANKO_AMK	0.00	0.00	0.00	0.00	0.00	0.00	180.96	0.00	-180.96	-180.96
MUNDRA APL	29.79	0.00	-29.79	0.00	0.00	0.00	9.55	17.57	8.02	-21.77
LANKO_KONDAPALLY	92.02	0.00	-92.02	45.06	0.00	-45.06	18.26	13.80	-4.46	-141.54

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.

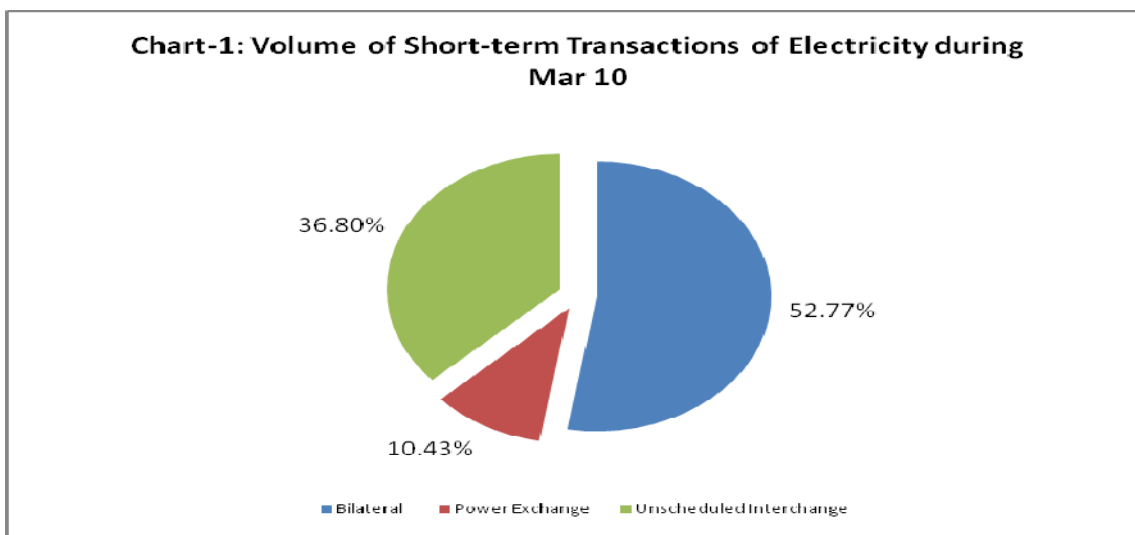
\*\* (-) indicates sale and (+) indicates purchase

\*\*\* Total net includes net of transactions through bilateral, power exchange and UI

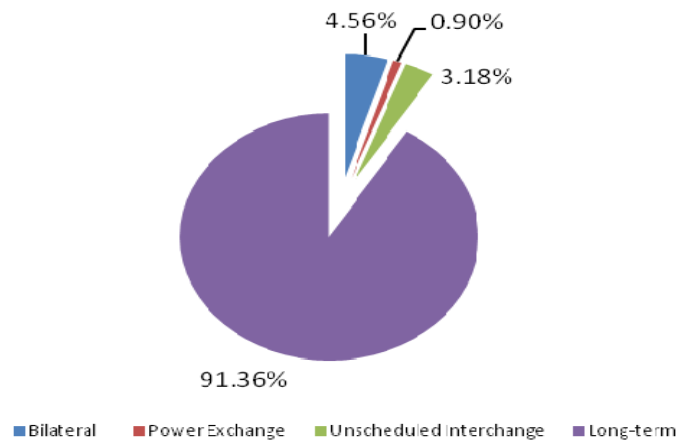


Table-1: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (ALL INDIA), MAR 2010				
Sr.No	Short-term transactions	Volume (MUs)	% to Volume of short-term transactions	% to Total Generation
1	Bilateral	3197.11	52.77%	4.56%
	(i) Through Traders and PXs	2665.84	44.00%	3.80%
	(ii) Direct	531.27	8.77%	0.76%
2	Through Power Exchanges	632.12	10.43%	0.90%
	IEX	563.13	9.29%	0.80%
	PXIL	68.99	1.14%	0.10%
3	Through UI	2229.62	36.80%	3.18%
	<b>Total</b>	<b>6058.85</b>	<b>100.00%</b>	<b>8.64%</b>
	<b>Total Generation</b>	<b>70099.55</b>		

Source: NLDC



**Chart-2: Volume of various kinds of Electricity Transactions in Total Electricity Generation during Mar 10**



**Chart-3: Daily Volume of Short-term Transactions of Electricity, March 2010**

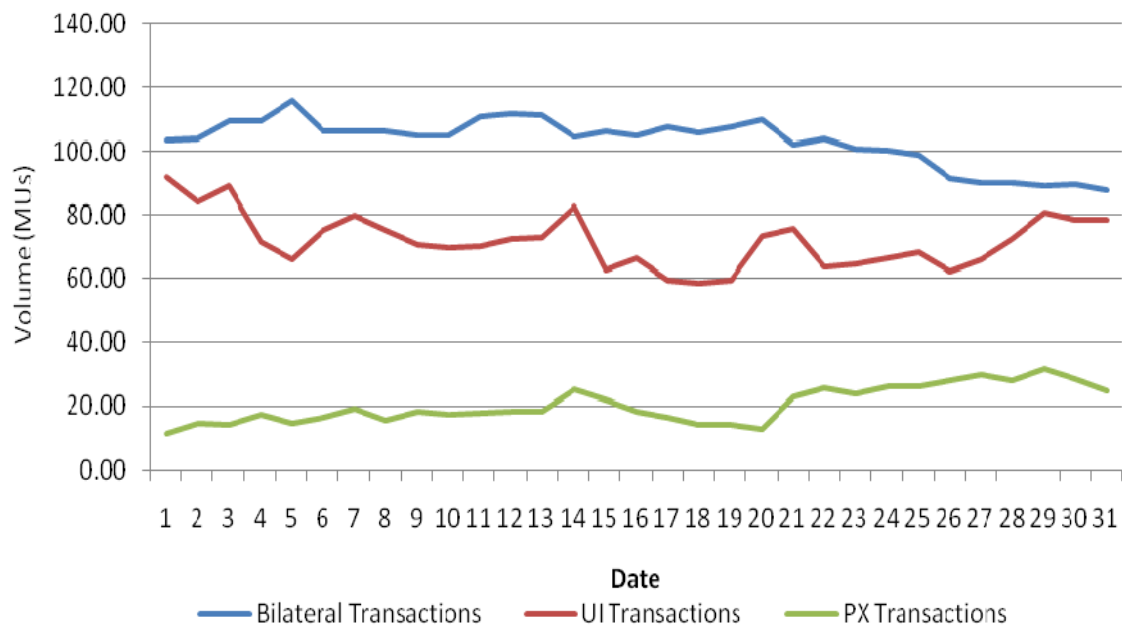
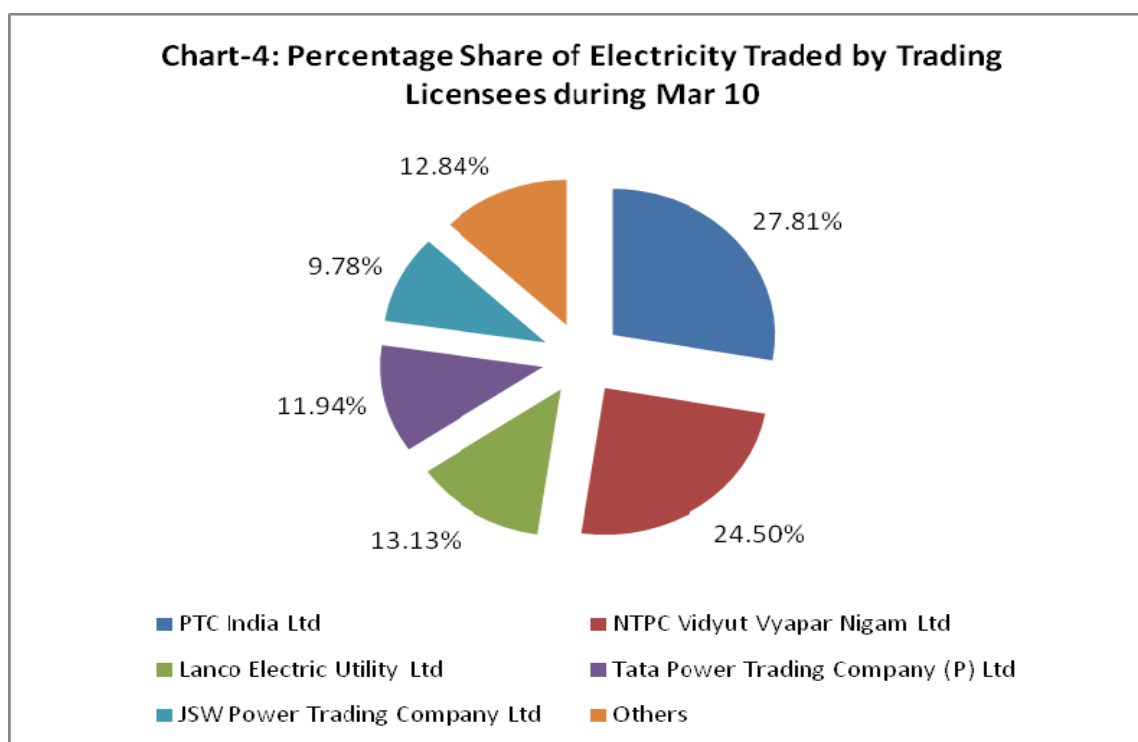


Table-2: Percentage Share of Electricity Traded by Trading Licensees during Mar 2010			
Sr.No	Name of the Trading Licensee	% Share in total Volume traded by Licensees	Herfindahl-Hirschman Index
1	PTC India Ltd	27.81%	0.0773
2	NTPC Vidyut Vyapar Nigam Ltd	24.50%	0.0600
3	Lanco Electric Utility Ltd	13.13%	0.0172
4	Tata Power Trading Company (P) Ltd	11.94%	0.0143
5	JSW Power Trading Company Ltd	9.78%	0.0096
6	Reliance Energy Trading (P) Ltd	9.11%	0.0083
7	Adani Enterprises Ltd	1.09%	0.0001
8	GMR Energy Trading Ltd	0.76%	0.0001
9	Mittal Processors (P) Ltd	0.54%	0.0000
10	Pune Power Development (P) Ltd	0.53%	0.0000
11	RPG Power Trading Company Ltd	0.45%	0.0000
12	Instinct Advertisement & Marketing Ltd	0.23%	0.0000
13	Knowledge Infrastructure Systems (P) Ltd	0.12%	0.0000
	<b>Total</b>	<b>100.00%</b>	<b>0.1870</b>
	<b>Top 5 trading licensees</b>	<b>87.16%</b>	

Note: Volume of electricity traded by the licensees includes bilateral transactions (inter-state) and the transactions undertaken through power exchanges.

Source: Information submitted by trading licensees



<b>Table-3: PRICE OF POWER TRANSACTED THROUGH TRADERS</b>		
<b>Sr.No</b>	<b>Period of Trade</b>	<b>Weighted Average Sale Price (Rs)</b>
1	RTC	4.99
2	PEAK	5.40
3	OFF PEAK	4.73
	<b>Total</b>	<b>4.94</b>

Source: Information submitted by trading licensees

<b>Table-4: PRICE OF POWER TRANSACTED THROUGH TRADERS</b>		
<b>Sr.No</b>		<b>Sale Price (Rs/KWh)</b>
1	Minimum	2.17
2	Maximum	7.43
3	Weighted Average	<b>4.94</b>

Source: Information submitted by trading licensees

<b>Table-5: PRICE OF POWER TRANSACTED THROUGH POWER EXCHANGE (Rs/KWh)</b>			
<b>Sr.No</b>	<b>MCP</b>	<b>IEX</b>	<b>PXIL</b>
1	Minimum	2.00	0.40
2	Maximum	9.00	8.22
3	Weighted Average	5.58	6.47

Source: Information submitted by IEX and PXIL

<b>Table-5A: Term ahead market of IEX</b>			
<b>Sr.No</b>	<b>Term ahead contracts</b>	<b>Actual Scheduled Volume (MUs)</b>	<b>Weighted Average Price (Rs/kwh)</b>
1	Intra-Day Contracts	1.24	7.13
2	Day-Ahead Contingency Contracts	0.64	8.00
3	Weekly Contracts	29.76	5.49
	<b>Total</b>	<b>31.64</b>	<b>5.61</b>

Source: IEX

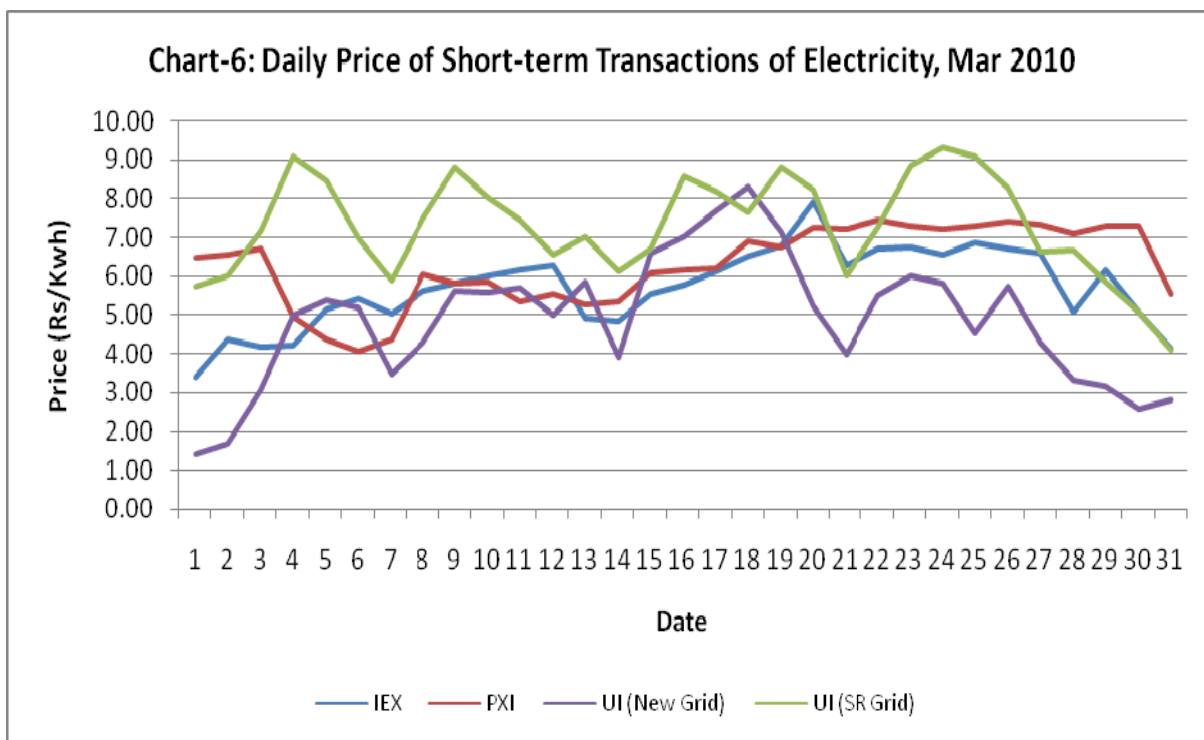
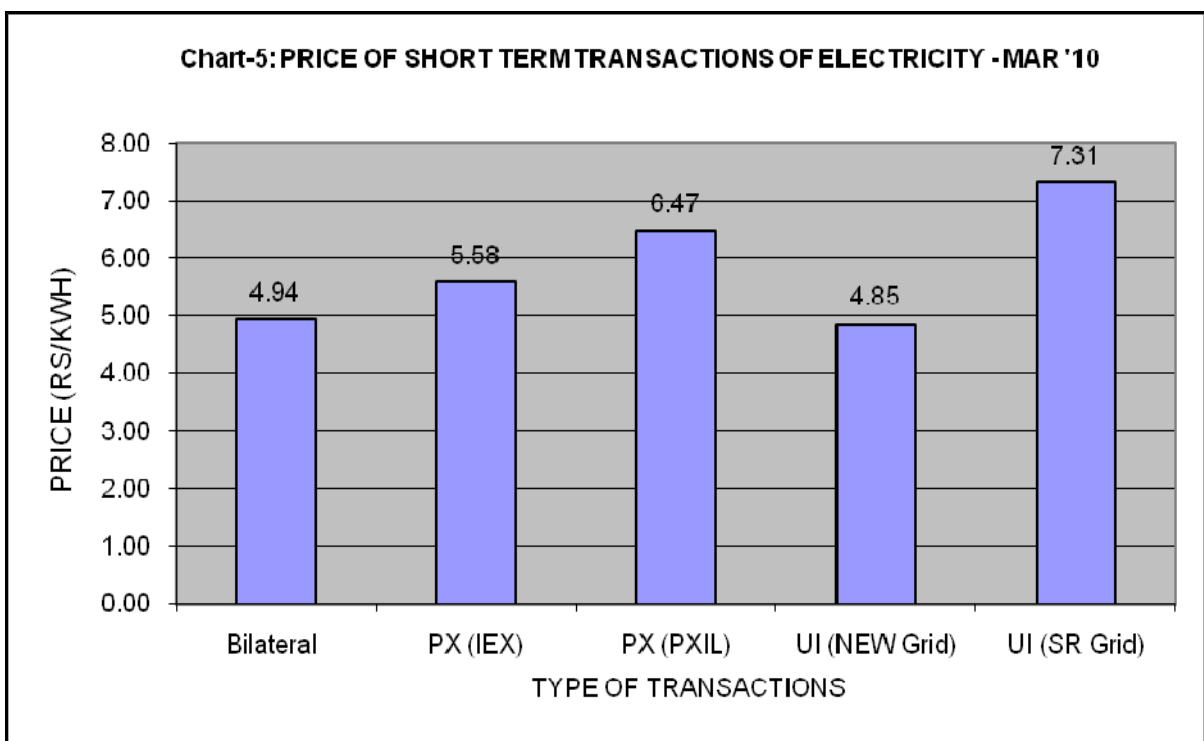
<b>Table-5B: Term ahead market of PXIL</b>			
<b>Sr.No</b>	<b>Term ahead contracts</b>	<b>Actual Scheduled Volume (MUs)</b>	<b>Weighted Average Price (Rs/kwh)</b>
1	Day-Ahead Contingency Contracts	0.62	7.50

Source: PXIL

<b>Table-6: PRICE OF POWER TRANSACTED THROUGH UI (Rs/KWh)</b>			
<b>Sr.No</b>		<b>NEW Grid</b>	<b>SR Grid</b>
1	Minimum	0.00	0.00
2	Maximum	10.29	10.29
3	Average	4.85	7.31

Source: NLDC





<b>Table-7: VOLUME OF ELECTRICITY SALE THROUGH BILATERAL</b>		
<b>Name of the State/UT/Other Regional Entity</b>	<b>Volume of Sale (MUs)</b>	<b>% of Volume</b>
Chattisgarh	472.47	14.82%
Gujarat	457.68	14.36%
JINDAL POWER	414.65	13.01%
Karnataka	366.55	11.50%
Delhi	288.17	9.04%
Punjab	243.64	7.64%
Kerala	150.08	4.71%
Haryana	141.40	4.44%
DVC	128.64	4.04%
J & K	99.67	3.13%
West Bengal	92.24	2.89%
LANKO_KONDAPALLY	92.02	2.89%
Andhra Pradesh	65.93	2.07%
MP	34.69	1.09%
Maharashtra	33.50	1.05%
Orissa	30.08	0.94%
MUNDRA APL	29.79	0.93%
Himachal Pradesh	20.75	0.65%
Rajasthan	12.94	0.41%
Sikkim	6.96	0.22%
Tripura	3.13	0.10%
Uttar Pradesh	2.07	0.06%
Uttarakhand	0.75	0.02%
Arunachal Pradesh	0.15	0.005%
<b>Total</b>	<b>3187.95</b>	<b>100.00%</b>
<b>Volume of sale by top 5 States</b>	<b>1999.52</b>	<b>62.72%</b>



<b>Table-8: VOLUME OF ELECTRICITY PURCHASE THROUGH BILATERAL</b>		
<b>Name of the State/UT/Other Regional Entity</b>	<b>Volume of Purchase (MUs)</b>	<b>% of Volume</b>
Tamilnadu	921.98	29.96%
Rajasthan	442.44	14.38%
Karnataka	395.22	12.84%
Andhra Pradesh	277.07	9.00%
Maharashtra	234.28	7.61%
Delhi	191.88	6.23%
Himachal Pradesh	102.97	3.35%
Kerala	78.03	2.54%
Jharkhand	74.40	2.42%
West Bengal	68.45	2.22%
Punjab	59.01	1.92%
MP	52.30	1.70%
Uttarakhand	49.60	1.61%
Uttar Pradesh	31.04	1.01%
Haryana	30.24	0.98%
J & K	28.80	0.94%
Assam	19.20	0.62%
Meghalaya	10.69	0.35%
Chattisgarh	8.93	0.29%
Gujarat	1.13	0.04%
<b>Total</b>	<b>3077.66</b>	<b>100.00%</b>
<b>Volume of purchase by top 5 States</b>	<b>2270.99</b>	<b>73.79%</b>

<b>Table-9: VOLUME OF ELECTRICITY SALE THROUGH POWER EXCHANGE</b>		
<b>Name of the State/UT/Other Regional Entity</b>	<b>Volume of Sale (MUs)</b>	<b>% of Volume</b>
Gujarat	135.40	21.42%
MP	91.11	14.41%
Karnataka	68.30	10.80%
Chattisgarh	64.78	10.25%
Delhi	60.70	9.60%
LANKO_KONDAPALLY	45.06	7.13%
JINDAL POWER	40.75	6.45%
Himachal Pradesh	38.44	6.08%
West Bengal	31.81	5.03%
Maharashtra	14.14	2.24%
Sikkim	10.37	1.64%
Rajasthan	7.34	1.16%
Andhra Pradesh	6.47	1.02%
Orissa	4.61	0.73%
Punjab	3.40	0.54%
Meghalaya	2.47	0.39%
Tripura	2.36	0.37%
Uttarakhand	2.22	0.35%
Haryana	1.27	0.20%
Arunachal Pradesh	0.77	0.12%
GOA	0.35	0.05%
<b>Total</b>	<b>632.12</b>	<b>100.00%</b>
<b>Volume of sale by top 5 States</b>	<b>420.28</b>	<b>66.49%</b>

<b>Table-10: VOLUME OF ELECTRICITY PURCHASE THROUGH POWER EXCHANGE</b>		
<b>Name of the State/UT/Other Regional Entity</b>	<b>Volume of Purchase (MUs)</b>	<b>% of Volume</b>
Rajasthan	198.92	31.47%
Tamilnadu	193.08	30.54%
Maharashtra	74.81	11.83%
Delhi	43.26	6.84%
Andhra Pradesh	25.10	3.97%
Haryana	24.91	3.94%
Kerala	23.49	3.72%
Punjab	13.73	2.17%
Meghalaya	12.34	1.95%
Gujarat	10.64	1.68%
Uttar Pradesh	8.92	1.41%
West Bengal	1.74	0.28%
Arunachal Pradesh	0.92	0.15%
Mizoram	0.14	0.02%
MP	0.07	0.01%
Karnataka	0.04	0.01%
<b>Total</b>	<b>632.12</b>	<b>100.00%</b>
<b>Volume of purchase by top 5 States</b>	<b>535.18</b>	<b>84.66%</b>

<b>Table-11: VOLUME OF ELECTRICITY EXPORT THROUGH UI</b>		
<b>Name of the State/UT/Other Regional Entity</b>	<b>Volume of Export (MUs)</b>	<b>% of Volume</b>
Gujarat	352.72	17.83%
DVC	241.93	12.23%
Delhi	206.79	10.46%
LANKO_AMK	180.96	9.15%
MP	129.88	6.57%
Chattisgarh	90.70	4.59%
Rajasthan	80.43	4.07%
Andhra Pradesh	69.22	3.50%
Bihar	67.67	3.42%
Daman and Diu	53.52	2.71%
Maharashtra	49.93	2.52%
Dadra & Nagar Haveli	45.05	2.28%
Uttar Pradesh	39.92	2.02%
West Bengal	36.92	1.87%
Assam	33.74	1.71%
GOA	33.70	1.70%
Himachal Pradesh	29.71	1.50%
J & K	29.22	1.48%
Jharkhand	28.02	1.42%
Orissa	19.88	1.01%
Uttarakhand	18.32	0.93%
LANKO_KONDAPALLY	18.26	0.92%
JINDAL POWER	17.79	0.90%
Karnataka	16.96	0.86%
Tamilnadu	14.50	0.73%
Punjab	12.07	0.61%
Kerala	11.94	0.60%
MUNDRA APL	9.55	0.48%
Pondicherry	7.81	0.39%
Tripura	7.39	0.37%
Meghalaya	5.09	0.26%
Manipur	4.11	0.21%
Arunachal Pradesh	3.67	0.19%
Sikkim	3.39	0.17%
UT Chandigarh	2.44	0.12%
Nagaland	2.23	0.11%
Haryana	1.22	0.06%
Mizoram	1.18	0.06%
<b>Total</b>	<b>1977.84</b>	<b>100.00%</b>
<b>Volume of Export by top 5 States</b>	<b>1112.27</b>	<b>56.24%</b>

<b>Table-12: VOLUME OF ELECTRICITY IMPORT THROUGH UI</b>		
<b>Name of the State/UT/Other Regional Entity</b>	<b>Volume of Import (MUs)</b>	<b>% of Volume</b>
Haryana	425.34	21.26%
Punjab	335.37	16.76%
Uttar Pradesh	252.97	12.65%
Tamilnadu	179.35	8.96%
Maharashtra	138.31	6.91%
Rajasthan	98.13	4.91%
Andhra Pradesh	58.95	2.95%
J & K	49.25	2.46%
Uttarakhand	48.61	2.43%
Orissa	48.50	2.42%
West Bengal	42.40	2.12%
Chattisgarh	40.79	2.04%
Karnataka	40.53	2.03%
Himachal Pradesh	39.30	1.96%
JINDAL POWER	21.65	1.08%
UT Chandigarh	18.65	0.93%
MP	17.60	0.88%
MUNDRA APL	17.57	0.88%
LANKO_KONDAPALLY	13.80	0.69%
Delhi	13.43	0.67%
Bihar	11.95	0.60%
Kerala	11.18	0.56%
Sikkim	9.89	0.49%
Meghalaya	9.30	0.47%
Nagaland	8.33	0.42%
Jharkhand	7.53	0.38%
Mizoram	7.28	0.36%
Manipur	6.25	0.31%
Arunachal Pradesh	5.99	0.30%
Assam	5.90	0.30%
Gujarat	4.48	0.22%
GOA	3.66	0.18%
Tripura	2.73	0.14%
Pondicherry	2.71	0.14%
DVC	2.43	0.12%
Dadra & Nagar Haveli	0.29	0.01%
Daman and Diu	0.10	0.01%
LANKO_AMK	0.00	0.00%
<b>Total</b>	<b>2000.52</b>	<b>100.00%</b>
<b>Volume of Import by top 5 States</b>	<b>1331.34</b>	<b>66.55%</b>

<b>Table-13: TOTAL VOLUME OF NET SHORT-TERM TRANSACTIONS OF ELECTRICITY (REGIONAL ENTITY-WISE)</b>		
<b>Sr.No</b>	<b>Name of the State/UT/Other Regional Entity</b>	<b>Total volume of net short-term transactions of electricity*</b>
1	Tamilnadu	1279.91
2	Rajasthan	638.78
3	Maharashtra	349.82
4	Haryana	336.59
5	Uttar Pradesh	250.95
6	Andhra Pradesh	219.51
7	Punjab	149.00
8	Uttarakhand	76.92
9	Jharkhand	53.91
10	Himachal Pradesh	53.36
11	Meghalaya	24.77
12	UT Chandigarh	16.22
13	Mizoram	6.23
14	Nagaland	6.10
15	Arunachal Pradesh	2.33
16	Manipur	2.14
17	Pondicherry	-5.10
18	Orissa	-6.07
19	Assam	-8.64
20	Tripura	-10.15
21	Sikkim	-10.83
22	Karnataka	-16.01
23	MUNDRA APL	-21.77
24	GOA	-30.38
25	Dadra & Nagar Haveli	-44.76
26	West Bengal	-48.37
27	Kerala	-49.31
28	J & K	-50.85
29	Daman and Diu	-53.42
30	Bihar	-55.72
31	LANKO_KONDAPALLY	-141.54
32	LANKO_AMK	-180.96
33	MP	-185.71
34	Delhi	-307.08
35	DVC	-368.14
36	JINDAL POWER	-451.55
37	Chattisgarh	-578.23
38	Gujarat	-929.55
* 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		

<b>Table-14: Details of Congestion in Power Exchanges for Mar 2010</b>			
	<b>Details of Congestion</b>	<b>IEX</b>	<b>PXIL</b>
A	Unconstrained Cleared Volume* (MU)	687.35	124.88
B	Actual Cleared Volume and hence scheduled (MU)	563.13	68.99
C	Volume of electricity that could not be cleared and hence not scheduled because of congestion (MU) (A-B)	124.22	55.88
D	Volume of electricity that could not be cleared as % to Actual Cleared Volume	22%	81%
E	Percentage of the time congestion occurred during the month (Number of hours congestion occurred/Total number of hours in the month)	78%	76%
F	Congestion occurrence (%) time block wise		
	0.00 - 6.00 hours	31%	31%
	6.00 - 12.00 hours	23%	21%
	12.00 - 18.00 hours	22%	25%
	18.00 - 24.00 hours	24%	23%

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