

**MONTHLY REPORT ON  
SHORT-TERM TRANSACTIONS OF ELECTRICITY  
(JULY 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 July 2010 is as under:

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

During the Month of July 2010, total electricity generation excluding generation from renewable and captive power plants in India was 65632.15 MUs (Table-1).

Of the total electricity generation, 8452.28 MUs (12.88%) were transacted through short-term, comprising of 4367.92 MUs (6.66%) through Bilateral (through traders and term-ahead contracts on Power Exchanges and directly between distribution companies), followed by 3041.12 MUs (4.63%) through UI and 1043.24 MUs (1.59%) through Power Exchanges (IEX and PXIL) (Table-1 & Chart-2).

Of the total short-term transactions, Bilateral constitute 51.68% (37.11% through traders and term-ahead contracts on Power Exchanges and 14.57% directly between distribution companies) followed by 35.98% through UI and 12.34% 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 37 trading licensees as on 31.7.2010, of which only 16 have engaged in trading during July 2010. Top 5 trading licenses had a share of 86.76% 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 0.1894 for the month of July, which shows high concentration of market power (Table-2).

The volume of electricity transacted through IEX and PXIL was 888.05 MUs and 155.19 MUs respectively. The volume of total Buy bids and Sale bids was 1361.22 MUs and 1326.14 MUs respectively in IEX and 248.82 MUs and 289.63 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 (1.03 times) and less demand in PXIL (0.86 times) when compared with the supply offered through these exchanges.

The volume of electricity transacted in term-ahead market of power exchanges i.e. through IEX was 128.97 MU and through PXIL was 306.00 MU (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.4.98/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.4.97/kWh, Rs.5.89/kWh and Rs.5.02/kWh respectively. Minimum and Maximum sale price was Rs.2.54/kWh and Rs.6.27/kWh respectively (Table-3 & 4).

(2) *Price of electricity transacted Through Power Exchange:* The Minimum, Maximum and Weighted Average Price have been computed for the volume transacted through IEX and PXIL separately. The Minimum, Maximum and Weighted Average Price was Rs.2.00/kWh, Rs.7.10/kWh and Rs.3.36/kWh respectively in IEX and Rs.1.90/kWh, Rs.7.00/kWh and Rs.3.23/kWh respectively in PXIL (Table-5).

The weighted average price of electricity transacted in term-ahead market through the weekly contracts of power exchanges was Rs.3.83/kWh in IEX and Rs.3.81/kWh in PXIL (Table-5A & Table-5B).

**(3) Price of electricity transacted Through UI:** All-India UI price has been computed for NEW Grid and SR Grid separately. The average UI price was Rs.4.11/kWh in the NEW Grid and Rs.3.95/kWh in the SR Grid. Minimum and Maximum price of UI was Rs.0.00/kWh and Rs.17.46/kWh respectively in the New Grid and Rs.0.00/kWh and Rs.17.46/kWh respectively in the SR Grid (Table-6).

The weighted average price/average price and volume 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 56.39% of the volume are Himachal Pradesh, Madhya Pradesh, J&K, Karnataka and Chattisgarh and top 5 regional entities purchasing 82.67% of the volume are Punjab, Delhi, Haryana, Tamil Nadu and Andhra Pradesh (Table-7 & 8).

Of the total Power Exchange transactions, top 5 regional entities selling 75.41% of the volume are Gujarat, Delhi, Chattisgarh, Karnataka and Sikkim and top 5 regional entities purchasing 87.63% of the volume are Tamil Nadu, Maharashtra, Uttar Pradesh, Rajasthan, Punjab (Table-9 & 10).

Of the total UI transactions, top 5 regional entities underdrawing 51.93% of the volume are Delhi, DVC, Gujarat, Punjab and Andhra Pradesh and top 5 regional entities overdrawing 51.02% of the volume are Maharashtra, Haryana, Rajasthan, Uttar Pradesh and Tamil Nadu (Table-11 & 12).

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

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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.

#### **IV: Congestion<sup>2</sup> 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”<sup>3</sup>.

In the month of July 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 0.6% of the actual cleared volume in IEX and about 1.2% of the actual cleared volume in PXIL.
- Although the congestion occurred in power exchanges, in percentage of time terms it was around 5% but in percentage of volume terms it was only 0.6-1.2 %.
- In IEX, congestion occurred in 5.11% of the hourly time blocks whereas in PXIL it occurred in 5.24% of the hourly time blocks.
- Congestion occurred in most number of times during 0:00-06:00 hours period of the day in both the exchanges.

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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.

## **V: Observations:**

- The percentage of short-term transactions of electricity to total electricity generation was 12.88 %.
- Of the total short-term transactions of electricity, 52% transacted through bilateral (through traders and term ahead contracts on power exchanges and directly by distribution companies) followed by 36% through UI and 12% through Power Exchanges.
- Top 5 trading licenses are having share of 86.8% in the total volume traded by all the trading licensees.
- The price of electricity transacted through Trading Licensees was relatively high (Rs.4.98/kWh) when compared with the price of electricity transacted through Power Exchange (Rs 3.36/kWh in IEX and 3.23/kWh in PXIL). The price of electricity transacted through UI was Rs.4.11/ kWh in NEW Grid and Rs.3.95/kWh in SR Grid.
- The Herfindahl Hirschman Index computed for volume of electricity traded by trading licensees was 0.1894 shows high concentration of 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 (1.03 times) and less demand in PXIL (0.86 times) when compared with the supply offered through these exchanges.
- Top 5 regional entities selling electricity are Himachal Pradesh, Gujarat, Jammu & Kashmir, Chattisgarh and DVC and top 5 regional entities purchasing electricity are Punjab, Haryana, Tamil Nadu, Maharashtra and Uttar Pradesh.
- The volume of electricity that could not be cleared due to congestion was about 0.6% of the actual cleared volume in IEX and about 1.2% of the actual cleared volume in PXIL. Congestion occurred in most number of times during 0:00-06:00 hours period of the day in both the exchanges.

VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (ALL INDIA) (MUs)						Total Electricity Generation (MUs) as given at CEA Website*
Month: July 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-Jul-10	94.87	41.18	24.79	4.32	84.82	2242.62
2-Jul-10	95.24	38.76	25.01	3.92	94.90	2211.22
3-Jul-10	94.32	38.74	29.37	4.37	106.55	2215.22
4-Jul-10	93.01	36.76	35.83	6.88	121.56	2134.75
5-Jul-10	96.06	38.44	27.26	5.70	125.74	2052.68
6-Jul-10	94.62	39.48	24.23	4.65	108.77	2070.94
7-Jul-10	92.89	39.77	23.83	3.96	116.41	2098.82
8-Jul-10	92.26	36.82	31.90	4.78	102.60	2129.07
9-Jul-10	85.36	38.29	36.90	8.04	78.41	2185.84
10-Jul-10	81.77	39.57	41.89	10.80	86.28	2213.75
11-Jul-10	85.07	37.51	45.16	9.16	100.59	2132.70
12-Jul-10	100.77	37.45	35.78	4.69	122.01	2079.28
13-Jul-10	104.42	37.45	35.62	6.88	109.00	2081.02
14-Jul-10	105.34	37.45	30.86	11.97	83.94	2151.02
15-Jul-10	106.63	37.14	28.75	5.53	74.96	2192.67
16-Jul-10	107.10	40.30	31.25	6.53	73.46	2170.50
17-Jul-10	108.02	41.00	29.67	5.82	77.08	2150.92
18-Jul-10	109.22	39.16	27.81	5.17	84.55	2144.23
19-Jul-10	113.33	41.02	18.32	2.52	94.77	2122.01
20-Jul-10	112.69	39.40	19.25	0.81	113.91	2106.74
21-Jul-10	115.88	40.62	21.32	1.01	93.80	2096.06
22-Jul-10	119.63	40.17	21.75	1.15	99.29	2095.60
23-Jul-10	118.26	43.37	27.47	1.42	94.50	2104.33
24-Jul-10	114.82	43.78	26.76	5.15	91.99	2093.36
25-Jul-10	112.85	40.05	28.22	1.77	103.46	1990.41
26-Jul-10	109.86	41.09	34.05	6.88	93.74	2006.33
27-Jul-10	91.15	41.24	30.23	7.53	109.68	2035.73
28-Jul-10	89.86	41.39	25.24	5.38	107.93	2070.92
29-Jul-10	90.61	41.39	23.14	3.14	103.06	2069.18
30-Jul-10	97.11	41.39	26.92	4.30	90.28	2085.80
31-Jul-10	103.34	41.39	19.48	0.97	93.05	2098.43
Total	3136.36	1231.55	888.05	155.19	3041.12	65632.15
Source: NLDC						
* Gross Electricity Generation excluding electricity generation from renewable and captive power plants.						
** The volume of bilateral through PXs represents the volume through term-ahead contracts.						

PRICE OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (Rs/KWh)												
Month: July 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-Jul-10	2.25	4.50	3.21	2.00	4.75	3.10	0.78	12.22	4.48	2.17	12.22	4.03
2-Jul-10	2.99	5.00	3.52	2.75	5.50	3.47	1.09	17.46	5.06	2.02	12.22	4.14
3-Jul-10	2.90	5.30	3.74	3.00	6.00	3.95	0.93	12.22	4.51	1.24	12.22	3.54
4-Jul-10	2.61	4.50	3.34	2.50	4.49	3.40	0.00	7.32	1.82	0.62	5.44	3.29
5-Jul-10	2.25	3.80	2.94	2.50	3.00	2.77	0.00	3.72	1.09	0.00	5.44	2.82
6-Jul-10	2.00	3.30	2.64	2.50	2.90	2.68	0.00	4.50	1.71	2.02	17.46	3.97
7-Jul-10	2.00	3.10	2.48	2.30	2.90	2.63	0.31	6.85	2.19	1.86	7.32	3.91
8-Jul-10	2.00	3.35	2.72	1.90	3.00	2.64	0.78	12.22	3.25	3.26	17.46	5.92
9-Jul-10	2.16	4.00	2.90	2.50	3.50	2.95	0.93	12.22	3.56	1.09	17.46	6.70
10-Jul-10	2.50	4.10	3.26	2.75	3.75	3.04	0.31	5.91	2.66	1.55	12.22	5.63
11-Jul-10	2.50	4.25	3.21	2.75	4.00	3.06	0.00	7.79	2.16	0.62	12.22	4.55
12-Jul-10	2.75	4.40	3.46	2.75	3.50	3.00	0.00	3.88	1.73	1.86	12.22	4.53
13-Jul-10	2.80	4.75	3.43	2.80	3.75	3.09	0.00	17.46	3.26	0.93	12.22	4.06
14-Jul-10	2.25	4.51	3.04	2.50	4.00	3.11	2.17	17.46	4.83	1.40	12.22	4.49
15-Jul-10	2.75	5.00	3.41	2.75	5.00	3.49	2.64	17.46	6.71	1.55	12.22	4.97
16-Jul-10	2.75	5.10	3.50	2.75	5.60	3.53	3.26	17.46	10.84	1.24	12.22	4.77
17-Jul-10	3.00	5.25	3.82	2.60	5.25	3.85	2.79	17.46	10.13	1.09	12.22	4.09
18-Jul-10	2.80	5.10	4.01	2.40	6.00	3.84	1.09	17.46	5.94	0.16	7.32	3.61
19-Jul-10	4.00	6.00	4.36	3.00	5.75	4.08	2.02	17.46	6.18	1.24	12.22	3.88
20-Jul-10	3.60	7.10	4.54	3.50	6.60	4.05	0.00	12.22	2.24	0.00	6.85	2.87
21-Jul-10	3.00	5.75	3.93	2.99	7.00	4.75	1.09	12.22	4.22	0.00	6.85	3.15
22-Jul-10	3.00	5.80	3.96	3.25	6.25	4.08	0.47	5.91	2.34	0.00	12.22	3.42
23-Jul-10	2.90	5.00	3.66	2.90	5.00	3.69	0.47	12.22	3.97	0.47	17.46	3.73
24-Jul-10	2.75	5.00	3.50	2.90	4.99	3.55	1.09	12.22	3.24	0.00	6.85	2.81
25-Jul-10	2.55	5.00	3.21	2.55	4.30	3.31	0.00	5.44	1.98	0.00	6.38	2.40
26-Jul-10	2.70	5.00	3.40	2.20	3.90	2.99	0.00	17.46	3.46	0.16	12.22	3.37
27-Jul-10	2.34	4.25	3.13	2.45	4.50	3.23	0.00	12.22	2.83	0.00	12.22	3.33
28-Jul-10	2.35	4.30	3.01	2.20	4.25	3.07	1.24	17.46	6.07	1.24	12.22	4.51
29-Jul-10	2.10	4.50	2.96	2.05	4.25	3.16	2.02	17.46	7.03	0.00	12.22	4.09
30-Jul-10	2.50	5.10	3.23	2.30	4.75	3.12	1.71	17.46	5.91	0.00	8.26	2.95
31-Jul-10	3.00	5.56	3.91	4.00	5.51	4.14	0.00	4.50	2.04	0.00	6.38	2.86
	2.00#	7.10#	3.36	1.90#	7.00#	3.23	0.00#	17.46#	4.11	0.00#	17.46#	3.95
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												

**Format-3**

VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (REGIONAL ENTITY*-WISE) (MUs)										
Month: July 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	9.55	1155.65	1146.10	24.53	125.46	100.93	181.84	159.20	-22.63	1224.40
Haryana	0.00	746.39	746.39	0.80	32.28	31.49	59.50	273.04	213.54	991.41
Rajasthan	5.32	6.69	1.38	10.25	162.87	152.62	69.12	235.18	166.06	320.06
Delhi	56.74	1009.23	952.49	209.58	0.17	-209.41	393.24	1.36	-391.88	351.19
Uttar Pradesh	19.34	152.05	132.71	0.00	165.75	165.75	118.20	175.17	56.96	355.43
Uttarakhand	60.69	0.00	-60.69	18.50	0.00	-18.50	86.12	22.55	-63.58	-142.76
Himachal Pradesh	654.97	0.00	-654.97	20.12	0.00	-20.12	51.86	12.80	-39.06	-714.15
J & K	342.12	4.80	-337.32	0.00	0.00	0.00	68.32	19.46	-48.86	-386.18
UT Chandigarh	0.00	39.82	39.82	0.00	0.00	0.00	29.36	1.38	-27.97	11.85
Madhya Pradesh	352.81	40.85	-311.96	32.00	0.14	-31.85	45.21	111.04	65.83	-277.99
Maharashtra	157.85	196.66	38.81	1.30	191.94	190.64	30.34	309.07	278.73	508.19
Gujarat	105.68	0.00	-105.68	396.17	19.78	-376.40	188.72	37.08	-151.65	-633.72
Chattisgarh	293.02	31.50	-261.53	54.55	0.00	-54.55	110.60	41.74	-68.86	-384.93
Daman and Diu	0.00	0.00	0.00	0.00	0.00	0.00	13.59	3.53	-10.07	-10.07
Dadra & Nagar Haveli	0.00	0.00	0.00	0.00	7.41	7.41	3.02	24.54	21.52	28.92
Andhra Pradesh	59.95	272.88	212.93	27.22	2.84	-24.39	155.47	42.09	-113.38	75.16
Karnataka	308.50	146.53	-161.97	48.73	12.69	-36.05	50.12	129.27	79.16	-118.86
Kerala	55.88	3.20	-52.68	0.00	40.55	40.55	1.51	88.30	86.80	74.66
Tamilnadu	236.61	426.74	190.13	0.00	268.11	268.11	41.58	171.80	130.23	588.47
Pondicherry	0.00	0.00	0.00	0.00	0.00	0.00	7.18	3.60	-3.59	-3.59
West Bengal	281.62	53.33	-228.29	42.01	8.96	-33.04	86.41	30.57	-55.84	-317.17
Orissa	46.09	0.40	-45.69	0.58	0.00	-0.58	52.60	37.11	-15.48	-61.75
Bihar	0.00	0.00	0.00	0.00	0.00	0.00	6.31	86.72	80.41	80.41
Jharkhand	0.00	74.40	74.40	0.00	0.00	0.00	0.34	171.56	171.22	245.62
Sikkim	16.80	6.62	-10.18	48.34	0.00	-48.34	2.52	25.92	23.40	-35.12
DVC	100.42	0.00	-100.42	4.96	0.00	-4.96	215.72	1.86	-213.86	-319.24
Arunachal Pradesh	17.52	0.00	-17.52	0.00	0.10	0.10	10.49	3.47	-7.02	-24.44
Assam	31.54	0.00	-31.54	18.53	0.00	-18.53	28.35	9.19	-19.17	-69.23
Manipur	0.00	0.00	0.00	0.00	0.00	0.00	19.57	0.40	-19.17	-19.17
Meghalaya	22.86	0.00	-22.86	3.76	0.00	-3.76	7.09	3.47	-3.62	-30.23
Mizoram	0.00	0.00	0.00	1.63	0.00	-1.63	8.01	0.20	-7.81	-9.44
Nagaland	15.83	0.00	-15.83	0.00	0.00	0.00	3.77	4.88	1.11	-14.72
Tripura	11.16	0.16	-11.00	13.81	4.21	-9.61	5.16	2.81	-2.34	-22.95
GOA	0.00	0.00	0.00	0.01	0.00	-0.01	34.39	2.82	-31.57	0.00
JINDAL POWER	476.01	0.00	-476.01	40.10	0.00	-40.10	6.87	14.44	7.57	-508.54
LANKO_AMK	0.00	0.00	0.00	0.00	0.00	0.00	141.82	1.79	-140.03	0.00
MUNDRA APL	53.59	0.00	-53.59	0.00	0.00	0.00	10.69	14.07	3.38	0.00
LANKO_KONDAPALLY	127.90	0.00	-127.90	27.04	0.00	-27.04	27.36	20.13	-7.24	0.00

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

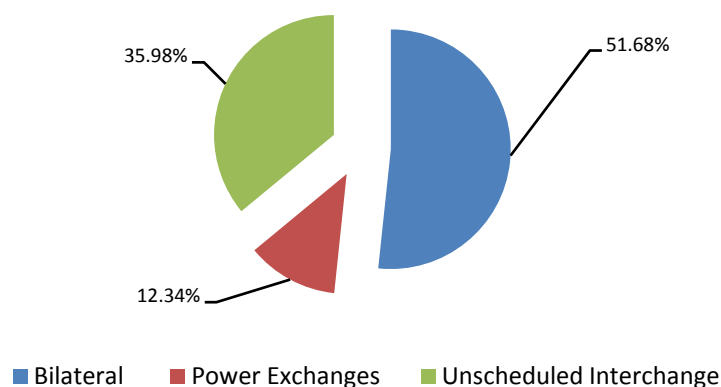
\*\*\* Total net includes net of transactions through bilateral, power exchange and UI



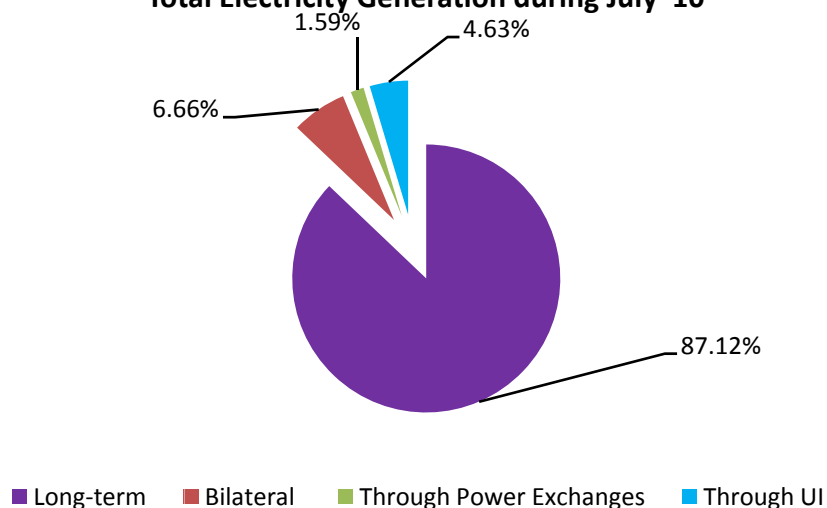
<b>Table-1: VOLUME OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (ALL INDIA), July 2010</b>				
<b>Sr.No</b>	<b>Short-term transactions</b>	<b>Volume (MUs)</b>	<b>% to Volume of short-term transactions</b>	<b>% to Total Generation</b>
1	Bilateral	4367.92	51.68%	6.66%
	(i) Through Traders and PXs	3136.36	37.11%	4.78%
	(ii) Direct	1231.55	14.57%	1.88%
2	Through Power Exchanges	1043.24	12.34%	1.59%
	IEX	888.05	10.51%	1.35%
	PXIL	155.19	1.84%	0.24%
3	Through UI	3041.12	35.98%	4.63%
	<b>Total</b>	<b>8452.28</b>	<b>100.00%</b>	<b>12.88%</b>
	<b>Total Generation</b>	<b>65632.15</b>	<b>—</b>	<b>—</b>

Source: NLDC

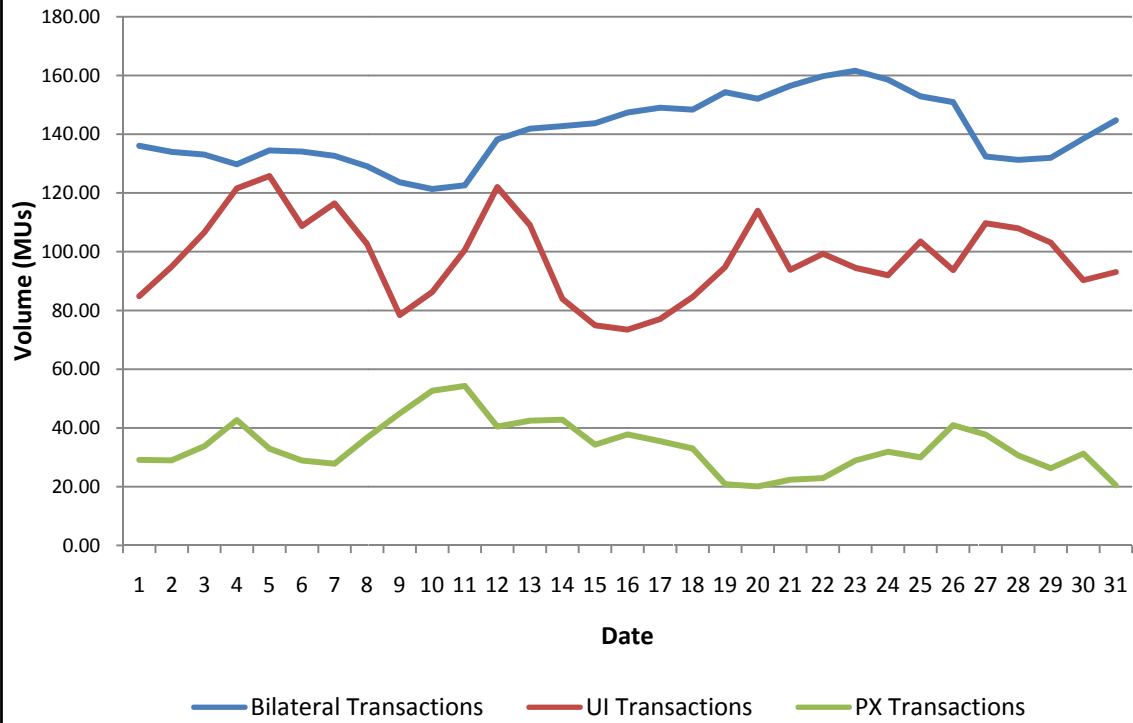
**Chart-1: Volume of Short-term Transactions of Electricity during July '10**



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

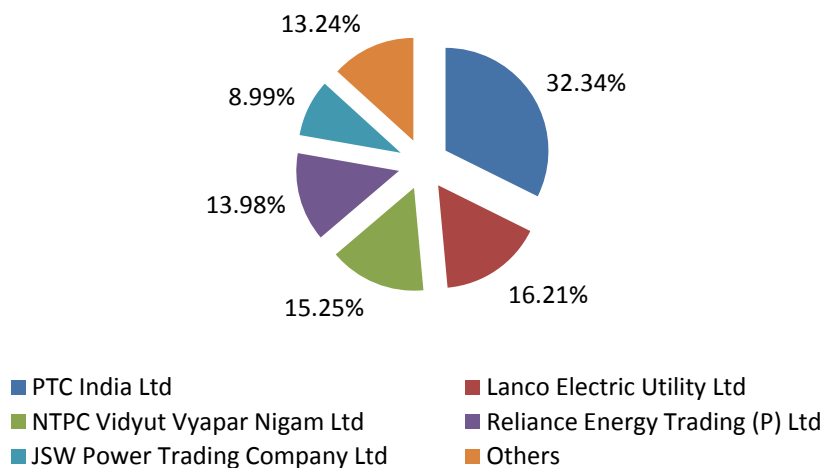


**Chart-3: Volume of Short-term Transactions of Electricity, July 2010**



<b>Table-2: Percentage Share of Electricity Traded by Trading Licensees during July 2010</b>			
<b>Sr.No</b>	<b>Name of the Trading Licensee</b>	<b>% Share in total Volume traded by Licensees</b>	<b>Herfindahl-Hirschman Index</b>
1	PTC India Ltd	32.34%	0.1046
2	Lanco Electric Utility Ltd	16.21%	0.0263
3	NTPC Vidyut Vyapar Nigam Ltd	15.25%	0.0233
4	Reliance Energy Trading (P) Ltd	13.98%	0.0195
5	JSW Power Trading Company Ltd	8.99%	0.0081
6	Tata Power Trading Company (P) Ltd	8.50%	0.0072
7	Adani Enterprises Ltd	1.51%	0.0002
8	Pune Power Development (P) Ltd	0.88%	0.0001
9	Knowledge Infrastructure Systems (P) Ltd	0.65%	0.0000
10	Instinct Advertisement & Marketing Ltd	0.62%	0.0000
11	Mittal Power	0.53%	0.0000
12	Godawari Power & Ispat Ltd.	0.19%	0.0000
13	GMR Energy Trading Ltd	0.16%	0.0000
14	Essar Electric Power Development Corp. Ltd.	0.14%	0.0000
15	RPG Power Trading Company Ltd	0.06%	0.0000
16	Shree Cement Ltd.	0.01%	0.0000
	<b>Total</b>	<b>100%</b>	<b>0.1894</b>
	<b>Top 5 trading licensees</b>	<b>86.8%</b>	
<i>Note: Volume of electricity traded by the licensees includes bilateral transactions (inter-state) and the transactions undertaken through power exchanges.</i>			
<i>Source: Information submitted by trading licensees</i>			

**Chart-4: Percentage Share of Electricity Traded by Trading Licensees during July 10**



<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	4.97
2	PEAK	5.89
3	OFF PEAK	5.02

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	2.54
2	Maximum	6.27
3	Weighted Average	4.98

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	1.90
2	Maximum	7.10	7.00
3	Weighted Average	3.36	3.23

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	0.40	6.25
2	Day-Ahead Contingency Contracts	7.96	3.17
3	Weekly Contracts	120.61	3.83
	<b>Total</b>	<b>128.97</b>	—

Source: IEX

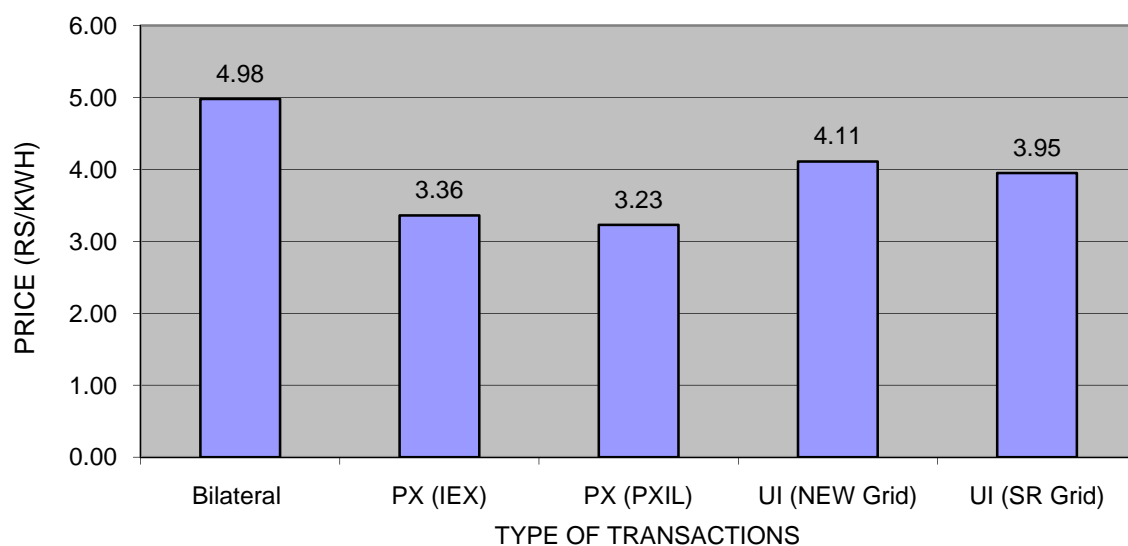
<b>Table-5B: Term ahead market of PXIL</b>			
<b>Sr.No</b>	<b>Term ahead contracts</b>	<b>Actual Scheduled Volume (MUs)</b>	<b>Weighted Average Price (Rs/kwh)</b>
1	Weekly Contracts	306.00	3.81

Source: PXIL

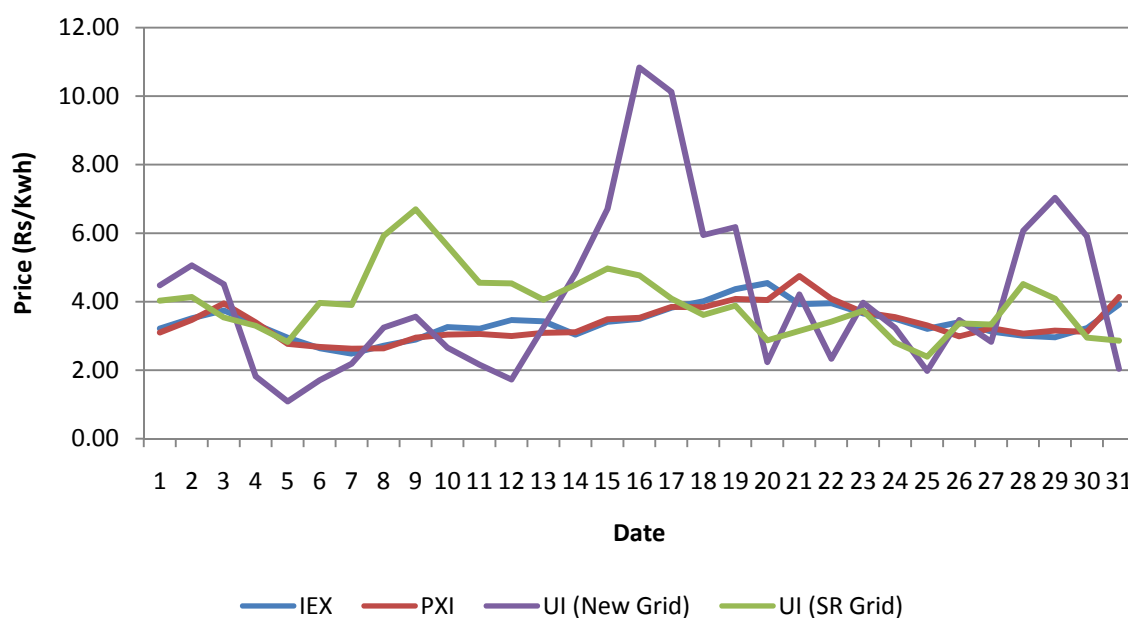
<b>Table-6: PRICE OF POWER TRANSACTED THROUGH UI (Rs/KWh)</b>			
<b>Sr.No</b>		<b>NEW Grid</b>	<b>SR Grid</b>
1	Minimum	0.00	0.00
2	Maximum	17.46	17.46
3	Average	4.11	3.95

Source: NLDC

**Chart-5: PRICE OF SHORT TERM TRANSACTIONS OF ELECTRICITY - July '10**



**Chart-6: Price of Short-term Transactions of Electricity, July 2010**



<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>
Himachal Pradesh	654.97	18.93%
MP	352.81	10.20%
J & K	342.12	9.89%
Karnataka	308.50	8.91%
Chattisgarh	293.02	8.47%
West Bengal	281.62	8.14%
Tamilnadu	236.61	6.84%
Maharashtra	157.85	4.56%
LANKO_KONDAPALLY	127.90	3.70%
Gujarat	105.68	3.05%
DVC	100.42	2.90%
Uttarakhand	60.69	1.75%
Andhra Pradesh	59.95	1.73%
Delhi	56.74	1.64%
Kerala	55.88	1.61%
MUNDRA APL	53.59	1.55%
Orissa	46.09	1.33%
Assam	31.54	0.91%
Meghalaya	22.86	0.66%
Uttar Pradesh	19.34	0.56%
Arunachal Pradesh	17.52	0.51%
Sikkim	16.80	0.49%
JINDAL POWER	16.20	0.47%
Nagaland	15.83	0.46%
Tripura	11.16	0.32%
Punjab	9.55	0.28%
Rajasthan	5.32	0.15%
<b>Total</b>	<b>3460.54</b>	<b>100.00%</b>
<b>Volume of sale by top 5 States</b>	<b>1951.43</b>	<b>56.39%</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>
Punjab	1155.65	26.46%
Delhi	1009.23	23.11%
Haryana	746.39	17.09%
Tamilnadu	426.74	9.77%
Andhra Pradesh	272.88	6.25%
Maharashtra	196.66	4.50%
Uttar Pradesh	152.05	3.48%
Karnataka	146.53	3.35%
Jharkhand	74.40	1.70%
West Bengal	53.33	1.22%
MP	40.85	0.94%
UT Chandigarh	39.82	0.91%
Chattisgarh	31.50	0.72%
Rajasthan	6.69	0.15%
Sikkim	6.62	0.15%
J & K	4.80	0.11%
Kerala	3.20	0.07%
Orissa	0.40	0.01%
Tripura	0.16	0.00%
<b>Total</b>	<b>4367.92</b>	<b>100%</b>
<b>Volume of purchase by top 5 States</b>	<b>3610.89</b>	<b>82.67%</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	396.17	39.44%
Delhi	209.58	20.87%
Chattisgarh	54.55	5.43%
Karnataka	48.73	4.85%
Sikkim	48.34	4.81%
West Bengal	42.01	4.18%
MP	32.00	3.19%
Andhra Pradesh	27.22	2.71%
LANKO_KONDAPALLY	27.04	2.69%
Punjab	24.53	2.44%
Himachal Pradesh	20.12	2.00%
Assam	18.53	1.84%
Uttarakhand	18.50	1.84%
Tripura	13.81	1.38%
Rajasthan	10.25	1.02%
DVC	4.96	0.49%
Meghalaya	3.76	0.37%
Mizoram	1.63	0.16%
Maharashtra	1.30	0.13%
Haryana	0.80	0.08%
Orissa	0.58	0.06%
GOA TOTAL	0.01	0.00%
JINDAL POWER	0.01	0.00%
<b>Total</b>	<b>1004.40</b>	<b>100.00%</b>
<b>Volume of purchase by top 5 States</b>	<b>757.38</b>	<b>75.41%</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>
Tamilnadu	268.11	25.70%
Maharashtra	191.94	18.40%
Uttar Pradesh	165.75	15.89%
Rajasthan	162.87	15.61%
Punjab	125.46	12.03%
Kerala	40.55	3.89%
Haryana	32.28	3.09%
Gujarat	19.78	1.90%
Karnataka	12.69	1.22%
West Bengal	8.96	0.86%
Dadra & Nagar Haveli	7.41	0.71%
Tripura	4.21	0.40%
Andhra Pradesh	2.84	0.27%
Delhi	0.17	0.02%
MP	0.14	0.01%
<b>Total</b>	<b>1043.15</b>	<b>100.00%</b>
<b>Volume of sale by top 5 States</b>	<b>914.13</b>	<b>87.63%</b>

Table-11: VOLUME OF ELECTRICITY EXPORT THROUGH UI		
Name of the State/UT/Other Regional Entity	Volume of Export (MUs)	% of Volume
Delhi	393.24	17.99%
DVC	215.72	9.87%
Gujarat	188.72	8.63%
Punjab	181.84	8.32%
Andhra Pradesh	155.47	7.11%
Uttar Pradesh	118.20	5.41%
Chattisgarh	110.60	5.06%
West Bengal	86.41	3.95%
Uttarakhand	86.12	3.94%
Rajasthan	69.12	3.16%
J & K	68.32	3.13%
Haryana	59.50	2.72%
Orissa	52.60	2.41%
Himachal Pradesh	51.86	2.37%
Karnataka	50.12	2.29%
MP	45.21	2.07%
Tamilnadu	41.58	1.90%
GOA TOTAL	34.39	1.57%
Maharashtra	30.34	1.39%
UT Chandigarh	29.36	1.34%
Assam	28.35	1.30%
Manipur	19.57	0.90%
Daman and Diu	13.59	0.62%
Arunachal Pradesh	10.49	0.48%
Mizoram	8.01	0.37%
Pondicherry	7.18	0.33%
Meghalaya	7.09	0.32%
Bihar	6.31	0.29%
Tripura	5.16	0.24%
Nagaland	3.77	0.17%
Dadra & Nagar Haveli	3.02	0.14%
Sikkim	2.52	0.12%
Kerala	1.51	0.07%
Jharkhand	0.34	0.02%
<b>Total</b>	<b>2185.63</b>	<b>100.00%</b>
<b>Volume of Export by top 5 States</b>	<b>1135.00</b>	<b>51.93%</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>
Maharashtra	309.07	13.54%
Haryana	273.04	11.97%
Rajasthan	235.18	10.31%
Uttar Pradesh	175.17	7.68%
Tamilnadu	171.80	7.53%
Jharkhand	171.56	7.52%
Punjab	159.20	6.98%
Karnataka	129.27	5.66%
MP	111.04	4.87%
Kerala	88.30	3.87%
Bihar	86.72	3.80%
Andhra Pradesh	42.09	1.84%
Chattisgarh	41.74	1.83%
Orissa	37.11	1.63%
Gujarat	37.08	1.62%
West Bengal	30.57	1.34%
Sikkim	25.92	1.14%
Dadra & Nagar Haveli	24.54	1.08%
Uttarakhand	22.55	0.99%
LANKO_KONDAPALLY	20.13	0.88%
J & K	19.46	0.85%
MUNDRA APL	14.07	0.62%
Himachal Pradesh	12.80	0.56%
Assam	9.19	0.40%
Nagaland	4.88	0.21%
Pondicherry	3.60	0.16%
Daman and Diu	3.53	0.15%
Arunachal Pradesh	3.47	0.15%
Meghalaya	3.47	0.15%
GOA TOTAL	2.82	0.12%
JINDAL POWER	2.82	0.12%
Tripura	2.81	0.12%
DVC	1.86	0.08%
LANKO_AMK	1.79	0.08%
UT Chandigarh	1.38	0.06%
Delhi	1.36	0.06%
Manipur	0.40	0.02%
Mizoram	0.20	0.01%
<b>Total</b>	<b>2281.98</b>	<b>100.00%</b>
<b>Volume of Import by top 5 States</b>	<b>1164.26</b>	<b>51.02%</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	Punjab	1224.40
2	Haryana	991.41
3	Tamilnadu	588.47
4	Maharashtra	508.19
5	Uttar Pradesh	355.43
6	Delhi	351.19
7	Rajasthan	320.06
8	Jharkhand	245.62
9	Bihar	80.41
10	Andhra Pradesh	75.16
11	Kerala	74.66
12	Dadra & Nagar Haveli	28.92
13	UT Chandigarh	11.85
14	Pondicherry	-3.59
15	Mizoram	-9.44
16	Daman and Diu	-10.07
17	Nagaland	-14.72
18	Manipur	-19.17
19	Tripura	-22.95
20	Arunachal Pradesh	-24.44
21	Meghalaya	-30.23
22	JINDAL POWER	-31.57
23	Sikkim	-35.12
24	Orissa	-61.75
25	Assam	-69.23
26	Karnataka	-118.86
27	Uttarakhand	-142.76
28	MP	-277.99
29	West Bengal	-317.17
30	DVC	-319.24
31	Chattisgarh	-384.93
32	J & K	-386.18
33	Gujarat	-633.72
34	Himachal Pradesh	-714.15
* 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 July 2010</b>			
<b>Details of Congestion</b>		<b>IEX</b>	<b>PXIL</b>
A	Unconstrained Cleared Volume* (MU)	893.31	157.03
B	Actual Cleared Volume and hence scheduled (MU)	888.05	155.19
C	Volume of electricity that could not be cleared as hence not scheduled because of congestion (MU) (A-B)	5.26	1.84
D	Volume of electricity that could not be cleared as % to Actual Cleared Volume	0.6%	1.2%
E	Percentage of the time congestion occurred during the month (Number of hours congestion occurred/Total number of hours in the month)	5.11%	5.24%
F	Congestion occurrence (%) time block wise		
	0.00 - 6.00 hours	87%	85%
	6.00 - 12.00 hours	8%	8%
	12.00 - 18.00 hours	0%	0%
	18.00 - 24.00 hours	5%	8%

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