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Abbreviations

Abbreviation Expanded Version

ACBIL ACB (India) Ltd
ACP Area Clearing Price
ACV Area Clearing Volume
AD HYDRO AD Hydro Power Limited

ADANI HVDC Adani Power Ltd. (HVDC Mundra)
BALCO Bharat Aluminium Company Limited

CEA Central Electricity Authority

CERC Central Electricity Regulatory Commission

CGPL Coastal Gujarat Power Ltd

DCPP Donga Mahua Captive Power Plant
DVC Damodar Valley Corporation
EMCO EMCO Energy Limited

IEX Indian Energy Exchange Limited

JINDAL POWER Jindal Power Limited

KARCHAM WANGTOO

LANKO_AMK

LANCO BUDHIL

Jaypee Karcham Hydro Corporation Limited

Lanco Amarkantak Power Private Limited

Lanco Budhil Hydro Power Private Limited

LANKO_KONDAPALLY Lanco Kondapalli Power Limited
Meenakshi Meenakshi Energy Private Limited

MP Madhya Pradesh MUs Million Units

NEEPCO Stations North Eastern Electric Power Corporation Limited. Stations

NEW Grid North, East, North-East and Western Regional Grid NHPC Stations National Hydro Electric Power Corporation Ltd. Stations

NJPC Nathpa Jhakri Hydroelectric Power Station

NLDC National Load Despatch Centre

NSPCL NTPC - SAIL Power Company Private Limited

PX Power Exchange

PXIL Power Exchange India Limited REC Renewable Energy Certificate

RGPPL Ratnagiri Gas and Power Private Limited

RLDC Regional Load Despatch Centre

RTC Round - the- Clock

SIMHAPURI Simhapuri Energy Private Limited

SHREE CEMENT Shree Cement Limited
SR Grid Southern Regional Grid
STERLITE Sterlite Energy Limited
UI Unscheduled Interchange

UT Union Territory

VANDANA VIDYUT Vandana Vidyut Limited

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 (inter-state & intra-state) 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; (iii) to analyse effect of congestion on volume of electricity transacted through power exchanges; (iv) to provide information on volume and price of Renewable Energy Certificates (RECs) transacted through power exchanges; and (v) to disclose/disseminate all relevant market information. The analysis of the report for the month of February 2013 is as under:

I: Volume of Short-term Transactions of Electricity

During the month of February 2013, total electricity generation excluding generation from renewable and captive power plants in India was 68458.78 MUs (Table-1).

Of the total electricity generation, 7176.89MUs (10.48%) were transacted through short-term, comprising of 3630.45MUs (5.30%) through Bilateral (through traders and termahead contracts on Power Exchanges and directly between distribution companies), followed by 2012.39MUs (2.94%) through day ahead collective transactions on Power Exchanges (IEX and PXIL) and 1534.05MUs (2.24%) through UI (Table-1 & Figure-2).

Of the total short-term transactions, Bilateral constitute 50.59% (37.35% through traders and term-ahead contracts on Power Exchanges and 13.24% directly between distribution companies) followed by 28.04% through day ahead collective transactions on Power Exchanges and 21.37% through UI (Table-1& Figure-1). Daily volume of short-term transactions is shown in Table-17 & Figure-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 & Figure-4. The trading licensees undertake 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 were 41 trading licensees as on 28.02.2013, of which only 20 have engaged in trading during February 2013. Top 5 trading licensees had a share of 75.87% in the total volume traded by all the licensees.

Herfindahl-Hirschman Index (HHI) has been used for measuring the competition among the trading licensees. Increase in the HHI generally indicates a decrease in competition and an increase of market power, whereas decrease indicates the opposite. The HHI below 0.15 indicates non-concentration of market power. The HHI computed for volume of electricity traded by trading licensees (inter-state & intra-state) was 0.1481 for the month of February 2013, which indicates that there was no concentration of market power (Table-2).

The volume of electricity transacted through IEX and PXIL in the day ahead market was 1975.42MUs and 36.97MUs respectively. The volume of total Buy bids and Sale bids was 3125.04MUs and 3518.28MUs respectively in IEX and 215.65MUs and 194.76MUs respectively in PXIL. The gap between the volume of buy bids and sale bids placed through power exchanges shows that there was less demand in IEX (0.89 times) and more demand in PXIL (1.11 times) when compared with the supply offered through these exchanges.

The volume of electricity transacted through IEX and PXIL in the term-ahead market was 19.25MUs and 1.05MU respectively (Table-6 & 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 ₹4.46/kWh. Weighted average sale price was also computed for the transactions during Round the Clock (RTC), Peak, and Off-Peak periods separately, and the sale prices were ₹4.42/kWh, ₹4.48/kWh and ₹4.89/kWh respectively. Minimum and Maximum sale prices were ₹2.90/kWh and ₹6.56/kWh respectively (Table-3 & 4).
- (ii) *Price of electricity transacted Through Power Exchanges:* Minimum, Maximum and Weighted Average Prices have been computed for the electricity transacted through IEX and PXIL separately. The Minimum, Maximum and Weighted Average prices were ₹0.005/kWh, ₹20.00/kWh and ₹2.90/kWh respectively in IEX and ₹1.50/kWh, ₹15.70/kWh and ₹2.42/kWh respectively in PXIL (Table-5).

The price of electricity transacted through IEX and PXIL in the term-ahead market was ₹2.98/kWh and ₹2.88/kWh respectively (Table-6 and Table-7).

(iii) *Price of electricity transacted Through UI:* All-India UI price has been computed for NEW Grid and SR Grid separately. The average UI price was ₹1.53/kWh in the NEW Grid and ₹3.83/kWh in the SR Grid. Minimum and Maximum UI prices were ₹0.00/kWh and ₹8.21/kWh respectively in the New Grid, and ₹0.00/kWh and ₹10.80/kWh respectively in the SR Grid (Table-8).

The prices of electricity transacted through trading licensees, power exchanges and UI and their comparison is shown in Table-18, Figure-5 & 6.

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

Of the total bilateral transactions, top 5 regional entities sold 50.23% of the volume, and these were Delhi, Jindal Power Limited, West Bengal, Haryana and Sterlite Energy Limited. Top 5 regional entities purchased 48.49% of the volume, and these were Rajasthan, Madhya Pradesh, Kerala, Jammu & Kashmir and Tamilnadu (Table-9, 10 & 19).

Of the total Power Exchange transactions, top 5 regional entities sold 65.09% of the volume, and these were Karnataka, Delhi, Gujarat, Jindal Power Limited and NHPC Stations. Top 5 regional entities purchased 78.54% of the volume, and these were Gujarat, Andhra Pradesh, Punjab, Rajasthan and Maharashtra (Table-11, 12 & 19).

Of the total UI transactions, top 5 regional entities underdrew 47.19% of the volume, and these were Uttar Pradesh, Rajasthan, Delhi, Jammu & Kashmir and Madhya Pradesh. Top 5 regional entities overdrew 36.08% of the volume, and these were Gujarat, West Bengal, Haryana, Orissa and Maharashtra (Table-13, 14 & 19).

Regional entity-wise total volume of net short-term transactions of electricity i.e. volume of net transactions through bilateral, power exchanges and UI is shown in Table-15 & 19. Top 5 electricity selling regional entities were Delhi, Karnataka, Jindal Power Limited, Sterlite Energy Limited and Uttar Pradesh. Top 5 electricity purchasing regional entities were Rajasthan, Andhra Pradesh, Kerala, Tamilnadu and Gujarat.

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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 February 2013, 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 between 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 in the power exchanges due to congestion was 21.42% and 74.93% of the unconstrained cleared volume in IEX and PXIL, respectively. In terms of time, congestion occurred was 100.00% in both the power exchanges.

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: Volume and Price of Renewable Energy Certificates (RECs)

The concept of Renewable Energy Certificates (RECs) seeks to address mismatch between availability of renewable energy sources and the requirement of the obligated entities to meet their renewable purchase obligation by purchasing green attributes of renewable energy remotely located in the form of RECs. The REC mechanism is a market based instrument, to promote renewable sources of energy and development of market in electricity.

One REC is equivalent to 1 MWh of electricity injected into the grid from renewable energy sources. The REC is exchanged only in the power exchanges approved by CERC within the band of a floor price and forbearance (ceiling) price as notified by CERC from time to time. The first REC trading session was held on power exchanges in March 2011.

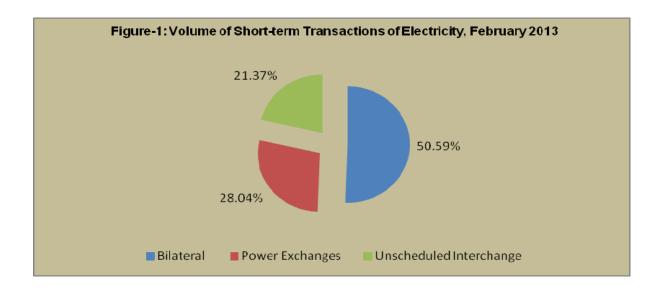
The details of REC transactions for the month of February 2013 are shown in Table-20. The market clearing volume of Solar RECs transacted on IEX and PXIL were 1924 and 310 respectively and the market clearing price of these RECs ware ₹12500/MWh and ₹13000/MWh on IEX and PXIL respectively. Market clearing volume of Non-Solar RECs transacted on IEX and PXIL were 48093 and 104859 respectively and the market clearing price of these RECs was ₹1500/MWh on both the power exchanges.

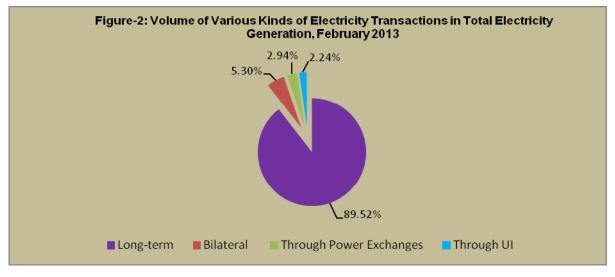
The gap between the volume of buy and sell bids of RECs placed through power exchanges shows that there was more demand for Solar RECs and less demand for Non-Solar RECs. For Solar RECs, the ratio of buy and sell bids was 1.89 and 7.11 in IEX and PXIL respectively. For Non-Solar RECs, the ratio of buy and sell bids was 0.03 and 0.48 in IEX and PXIL respectively.

VI: Inferences:

- The percentage of short-term transactions of electricity to total electricity generation was 10.48%.
- Of the total short-term transactions of electricity, 50.59% was transacted through bilateral (through traders and term ahead contracts on power exchanges and directly by distribution companies), followed by 28.04% through Power Exchanges and 21.37% through UI.
- Top 5 trading licensees had a share of 75.87% in the total volume traded by all the trading licensees.
- The Herfindahl Hirschman Index computed for volume of electricity traded by trading licensees was 0.1481, indicating an unconcentration of market power.
- The price of electricity transacted through trading licensees (₹4.46/kWh) was higher when compared with the price of electricity transacted through IEX (₹2.90/kWh) and PXIL (₹2.42/kWh) respectively.
- The price of electricity transacted through UI was ₹1.53/kWh in the NEW Grid and ₹3.83/kWh in the SR Grid.
- The gap between the volume of buy bids and sale bids placed through power exchanges indicates that there was less demand in IEX (1: 0.89) and more demand in PXIL (1: 1.11) when compared with the supply offered through these exchanges.
- Top 5 electricity selling regional entities were Delhi, Karnataka, Jindal Power Limited, Sterlite Energy Limited and Uttar Pradesh. Top 5 electricity purchasing regional entities were Rajasthan, Andhra Pradesh, Kerala, Tamilnadu and Gujarat.
- The volume of electricity that could not be cleared in the power exchanges due to congestion was 21.42% and 74.93% of the unconstrained cleared volume in IEX and PXIL, respectively. In terms of time, congestion occurred was 100.00% in both the power exchanges.
- The market clearing volume of Solar RECs transacted on IEX and PXIL were 1924 and 310 respectively and the market clearing price of these RECs ware ₹12500/MWh and ₹13000/MWh on IEX and PXIL respectively. Market clearing volume of Non-Solar RECs transacted on IEX and PXIL were 48093 and 104859 respectively and the market clearing price of these RECs was ₹1500/MWh on both the power exchanges.

Table-1: Sr.No	Short-term transactions	Volume (MUs)	% to Volume of short-term transactions	% to Total Generation
1	Bilateral	3630.45	50.59%	5.30%
	(i) Through Traders and PXs	2680.55	37.35%	3.92%
	(ii) Direct	949.90	13.24%	1.39%
2	Through Power Exchanges	2012.39	28.04%	2.94%
	(i) IEX	1975.42	27.52%	2.89%
	(ii) PXIL	36.97	0.52%	0.05%
3	Through UI	1534.05	21.37%	2.24%
	Total	7176.89	100.00%	10.48%
	Total Generation	68458.78	_	_
Source: NLDC				





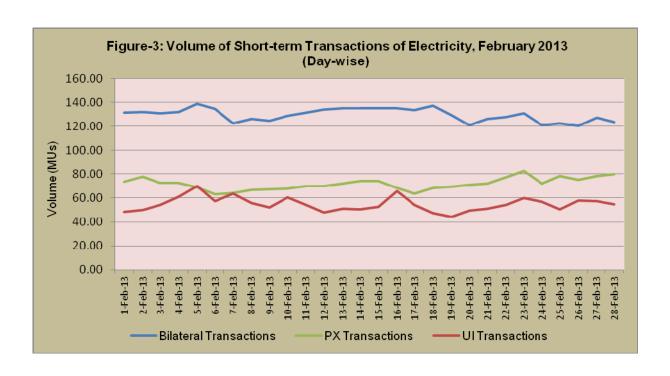


Table-	Table-2: PERCENTAGE SHARE OF ELECTRICITY TRANSACTED BY TRADING LICENSEES, FEBRUARY 2013				
Sr.No	Name of the Trading Licensee	% Share in total Volume transacted by Trading Licensees	Herfindahl- Hirschman Index		
1	PTC India Ltd.	28.91%	0.0836		
2	Tata Power Trading Company (P) Ltd.	13.95%	0.0195		
3	JSW Power Trading Company Ltd.	13.22%	0.0175		
4	NTPC Vidyut Vyapar Nigam Ltd.	10.42%	0.0109		
5	Reliance Energy Trading (P) Ltd	9.37%	0.0088		
6	Adani Enterprises Ltd.	5.65%	0.0032		
7	Mittal Processors (P) Ltd.	4.36%	0.0019		
8	Knowledge Infrastructure Systems (P) Ltd	3.53%	0.0012		
9	Shree Cement Ltd.	2.22%	0.0005		
10	National Energy Trading & Services Ltd.	2.18%	0.0005		
11	Instinct Infra & Power Ltd.	1.40%	0.0002		
12	GMR Energy Trading Ltd.	0.98%	0.0001		
13	Manikaran Power Ltd.	0.95%	0.0001		
14	Jaiprakash Associates Ltd.	0.95%	0.0001		
15	RPG Power Trading Company Ltd.	0.89%	0.0001		
16	Arunachal Pradesh Power Corporation Pvt. Ltd.	0.38%	0.0000		
17	Indrajit Power Technology (P) Ltd.	0.32%	0.0000		
18	Pune Power Development Pvt. Ltd.	0.20%	0.0000		
19	Customized Energy Solutions India Pvt. Ltd.	0.08%	0.0000		
20	Essar Electric Power Development Corp. Ltd.	0.04%	0.0000		
	TOTAL 100.00% 0.1481				
	Top 5 trading licensees 75.87%				

Note 1: Volume of electricity transacted by the trading licensees includes bilateral transactions (inter-state & intrastate) and the transactions undertaken through power exchanges.

Note 2: Volume of electricity transacted by Global Energy Ltd is not included.

Source: Information submitted by trading licensees

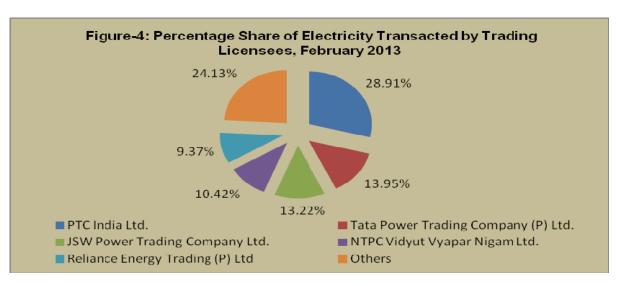


Table	Table-3: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS, FEBRUARY 2013		
Sr.No		Sale Price of Traders (₹/kWh)	
1	Minimum	2.90	
2	Maximum	6.56	
3	Weighted Average	4.46	

Source: Trading Licensees

Table-4: PRICE OF ELECTRICITY TRANSACTED THROUGH TRADERS (TIME-WISE), FEBRUARY 2013			
Sr.No	Period of Trade Sale Price of Traders (₹/kWh)		
1	RTC	4.42	
2	PEAK	4.48	
3	OFF PEAK	4.89	

Source: Trading Licensees

Та	Table-5: PRICE OF ELECTRICITY TRANSACTED THROUGH POWER EXCHANGES, FEBRUARY 2013			
Sr.No	r.No ACP Price in IEX (₹/kWh) Price in PXIL (₹/kWh)			
1	Minimum	0.005	1.50	
2	Maximum	20.00	15.70	
3	Weighted Average	2.90	2.42	

Source: IEX and PXIL

Та	Table-6: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF IEX, FEBRUARY 2013			
Sr.No	Term ahead contracts	Actual Scheduled Volume (MUs)	Weighted Average Price (₹/kWh)	
1	Intra-Day Contracts	2.11	2.96	
2	Day-ahead Contingency Contracts	1.58	2.86	
3	Daily Contracts	15.56	3.00	
	Total	19.25	2.98	

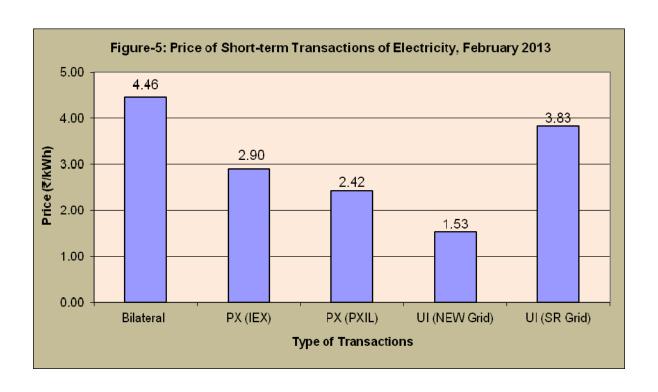
Source: : IEX

Table-7: VOLUME AND PRICE OF ELECTRICITY IN TERM AHEAD MARKET OF PXIL, FEBRUARY 2013				
Sr.No	Term ahead contracts Actual Scheduled Weighted Average Volume (MUs) Price (₹/kWh)			
1	Intra-Day Contracts	1.05	2.88	
	Total	1.05	2.88	

Source: : PXIL

Ta	Table-8: PRICE OF ELECTRICITY TRANSACTED THROUGH UI, FEBRUARY 2013			
Sr.No Price in NEW Grid (₹/kWh) Price in SR Grid (₹/kWh)				
1	Minimum	0.00	0.00	
2	Maximum	8.21	10.80	
3	Average	1.53	3.83	

Source: : NLDC



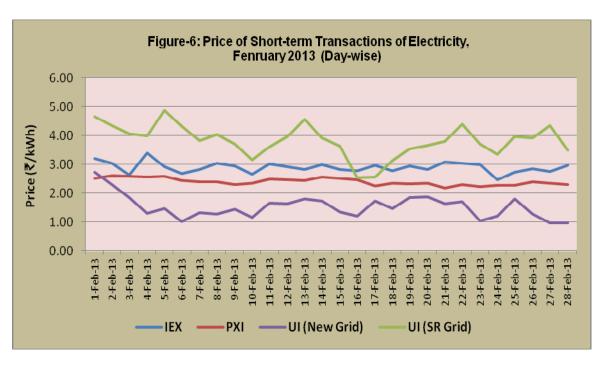


Table-9: VOLUME OF ELECTRICITY SALE THROUGH BILATERAL, FEBRUARY 2013			
Name of the State/UT/Other Regional Entity	Volume of Sale (MUs)	% of Volume	
Delhi	524.71	14.41%	
JINDAL POWER	340.48	9.35%	
West Bengal	335.08	9.20%	
Haryana	321.45	8.82%	
STERLITE	307.97	8.45%	
Karnataka	307.66	8.45%	
DVC	236.45	6.49%	
Punjab	228.58	6.28%	
Chattisgarh	196.94	5.41%	
Gujarat	137.19	3.77%	
Orissa	135.39	3.72%	
Uttar Pradesh	112.20	3.08%	
UT Chandigarh	97.88	2.69%	
Jharkhand	95.34	2.62%	
LANKO_AMK	68.75	1.89%	
Himachal Pradesh	46.89	1.29%	
Rajasthan	36.05	0.99%	
SHREE CEMENT	36.05	0.99%	
MAITHON POWER LTD	24.89	0.68%	
KARCHAM WANGTOO	18.39	0.50%	
J & K	10.84	0.30%	
AD HYDRO	7.32	0.20%	
MP	6.91	0.19%	
LANKO_KONDAPALLY	5.84	0.16%	
Tripura	2.52	0.07%	
ACBIL	0.77	0.02%	
Total	3642.54	100.00%	
Volume of sale by top 5 States	1829.70	50.23%	

Table-10: VOLUME OF ELECTRICITY PURCHASE THROUGH BILATERAL, FEBRUARY 2013			
Name of the State/UT/Other Regional Entity	Volume of Purchase (MUs)	% of Volume	
Rajasthan	467.35	12.84%	
MP	420.59	11.56%	
Kerala	336.50	9.25%	
J&K	272.86	7.50%	
Tamilnadu	266.98	7.34%	
Uttarakhand	266.76	7.33%	
Himachal Pradesh	261.35	7.18%	
Andhra Pradesh	245.92	6.76%	
Bihar	191.17	5.25%	
West Bengal	147.02	4.04%	
Gujarat	131.63	3.62%	
Jharkhand	106.41	2.92%	
Haryana	84.66	2.33%	
Chattisgarh	74.04	2.03%	
Uttar Pradesh	62.58	1.72%	
Assam	62.42	1.72%	
Maharashtra	57.79	1.59%	
DVC	54.41	1.50%	
Meghalaya	51.97	1.43%	
Dadra & Nagar Haveli	47.04	1.29%	
Delhi	15.19	0.42%	
Punjab	9.24	0.25%	
Sikkim	2.07	0.06%	
Tripura	1.57	0.04%	
Meenakshi	0.87	0.02%	
Orissa	0.10	0.00%	
Total	3638.44	100.00%	
Volume of sale by top 5 States	1764.27	48.49%	

Table-11: VOLUME OF ELECTRICITY S	Table-11: VOLUME OF ELECTRICITY SALE THROUGH POWER EXCHANGES, FEBRUARY 2013							
Name of the State/UT/Other Regional Entity	Volume of Sale (MUs)	% of Volume						
Karnataka	386.98	19.23%						
Delhi	333.09	16.55%						
Gujarat	271.62	13.50%						
JINDAL POWER	211.30	10.50%						
NHPC Stations	106.82	5.31%						
STERLITE	96.90	4.82%						
MP	85.08	4.23%						
Haryana	74.16	3.69%						
DCPP	70.13	3.49%						
Andhra Pradesh	55.04	2.74%						
KARCHAM WANGTOO	44.59	2.22%						
Maharashtra	43.59	2.17%						
Chattisgarh	36.15	1.80%						
ADANI HVDC	30.20	1.50%						
ADHUNIK POWER LTD	25.41	1.26%						
SHREE CEMENT	20.16	1.00%						
Himachal Pradesh	20.01	0.99%						
J&K	14.73	0.73%						
West Bengal	14.09	0.70%						
Rajasthan	12.87	0.64%						
ACBIL	11.10	0.55%						
DVC	10.13	0.50%						
Orissa	8.14	0.40%						
MAITHON POWER LTD	7.97	0.40%						
Sikkim	7.79	0.39%						
Tripura	4.18	0.21%						
UT Chandigarh	2.31	0.11%						
SIMHAPURI	2.23	0.11%						
NEEPCO Stations	2.01	0.10%						
AD HYDRO	1.31	0.06%						
Uttarakhand	1.25	0.06%						
Meghalaya	1.02	0.05%						
BALCO	0.06	0.00%						
Total	2012.39	100.00%						
Volume of sale by top 5 States	1309.80	65.09%						

Table-12: VOLUME OF ELECTRICITY PURCHASE THROUGH POWER EXCHANGES, FEBRUARY 2013						
Name of the State/UT/Other Regional Entity	Volume of Purchase (MUs)	% of Volume				
Gujarat	578.47	28.75%				
Andhra Pradesh	319.50	15.88%				
Punjab	296.54	14.74%				
Rajasthan	272.48	13.54%				
Maharashtra	113.53	5.64%				
Haryana	109.97	5.46%				
Tamilnadu	80.11	3.98%				
West Bengal	45.27	2.25%				
MP	44.12	2.19%				
Kerala	41.57	2.07%				
Uttarakhand	37.46	1.86%				
Chattisgarh	18.11	0.90%				
Assam	16.10	0.80%				
Karnataka	9.73	0.48%				
Arunachal Pradesh	9.26	0.46%				
Nagaland	6.97	0.35%				
Meghalaya	5.99	0.30%				
Delhi	3.91	0.19%				
GOA	1.71	0.08%				
Himachal Pradesh	1.34	0.07%				
Tripura	0.25	0.01%				
UT Chandigarh	0.01	0.00%				
Total	2012.39	100.00%				
Volume of purchase by top 5 States	1580.53	78.54%				

Table-13: VOLUME OF ELECTRICITY EXPORT THROUGH UI, FEBRUARY 2013						
Name of the State/UT/Other Regional Entity	Volume of Export (MUs)	% of Volume				
Uttar Pradesh	217.26	18.21%				
Rajasthan	121.44	10.18%				
Delhi	84.91	7.11%				
J&K	74.24	6.22%				
MP	65.32	5.47%				
Maharashtra	65.25	5.47%				
NHPC Stations	54.11	4.53%				
Haryana	50.92	4.27%				
Gujarat	47.35	3.97%				
Punjab	45.77	3.83%				
Pondicherry	38.17	3.20%				
Uttarakhand	25.93	2.17%				
Himachal Pradesh	23.73	1.99%				
Karnataka	23.72	1.99%				
_ANKO_AMK	22.09	1.85%				
Andhra Pradesh	21.35	1.79%				
Chattisgarh	17.37	1.46%				
Jharkhand	15.60	1.31%				
onarknand Bihar		1.29%				
	15.45					
Assam	15.29	1.28%				
West Bengal	15.12	1.27%				
Dadra & Nagar Haveli	13.54	1.13%				
GOA	13.14	1.10%				
OVC	13.05	1.09%				
Гаmilnadu	11.17	0.94%				
NJPC	8.01	0.67%				
MAITHON POWER LTD	7.83	0.66%				
Sikkim	6.92	0.58%				
Orissa	6.84	0.57%				
STERLITE	6.70	0.56%				
JINDAL POWER	6.09	0.51%				
NEEPCO Stations	4.16	0.35%				
ACBIL	3.86	0.32%				
DCPP	3.78	0.32%				
JT Chandigarh	3.71	0.31%				
KARCHAM WANGTOO	3.64	0.31%				
SHREE CEMENT	3.44	0.29%				
Meghalaya	3.29	0.28%				
CGPL	2.48	0.21%				
Manipur	1.97	0.17%				
Tripura	1.73	0.14%				
Daman and Diu	1.72	0.14%				
BALCO	1.72	0.11%				
Kerala	1.26	0.09%				
NSPCL	1.07	0.09%				
SIMHAPURI AD HYDRO	0.88	0.07%				
-	0.68	0.06%				
Arunachal Pradesh	0.34	0.03%				
Mizoram	0.25	0.02%				
Nagaland	0.23	0.02%				
RGPPL	0.14	0.01%				
LANKO_KONDAPALLY	0.06	0.01%				
Total	1193.41	100.00%				
Volume of Export by top 5 States	563.17	47.19%				

Table-14: VOLUME OF ELECTRICITY IMPORT THROUGH UI, FEBRUARY 2013						
Name of the State/UT/Other Regional Entity	Volume of Import (MUs)	% of Volume				
Gujarat	101.69	8.42%				
West Bengal	91.41	7.57%				
Haryana	89.23	7.39%				
Orissa	76.85	6.36%				
Maharashtra	76.61	6.34%				
Chattisgarh	67.72	5.61%				
Kerala	58.20	4.82%				
DVC	56.21	4.65%				
Punjab	44.89	3.72%				
MP	44.59	3.69%				
CGPL	43.73	3.62%				
Tamilnadu	42.94	3.56%				
NHPC Stations	40.51	3.35%				
Rajasthan	37.15	3.08%				
Uttar Pradesh	30.46	2.52%				
Uttarakhand	29.19	2.42%				
Andhra Pradesh	26.20	2.42%				
Jharkhand	23.21	1.92%				
Bihar Limented Bredesk	17.02	1.41%				
Himachal Pradesh	15.30	1.27%				
J&K	15.14	1.25%				
STERLITE	14.28	1.18%				
Arunachal Pradesh	11.33	0.94%				
GOA	11.26	0.93%				
Delhi	10.78	0.89%				
Karnataka	10.43	0.86%				
Daman and Diu	10.15	0.84%				
Manipur	9.77	0.81%				
RGPPL	9.63	0.80%				
LANKO_AMK	8.62	0.71%				
UT Chandigarh	8.27	0.68%				
Nagaland	7.96	0.66%				
JINDAL POWER	7.11	0.59%				
Meghalaya	6.77	0.56%				
Tripura	6.06	0.50%				
Mizoram	5.23	0.43%				
DCPP	5.13	0.42%				
Assam	4.71	0.39%				
NJPC	4.61	0.38%				
MAITHON POWER LTD	4.42	0.37%				
NEEPCO Stations	3.28	0.27%				
SHREE CEMENT	3.25	0.27%				
SIMHAPURI	3.22	0.27%				
Dadra & Nagar Haveli						
	2.65	0.22%				
KARCHAM WANGTOO	2.65	0.22%				
AD HYDRO	1.73	0.14%				
ACBIL	1.67	0.14%				
Sikkim	1.65	0.14%				
NSPCL	1.26	0.10%				
BALCO	0.95	0.08%				
LANKO_KONDAPALLY	0.75	0.06%				
Total	1207.84	100.00%				
Volume of Export by top 5 States	435.79	36.08%				

Sr.No.	Name of the State/UT/Other Regional Entity	Total volume of net short-term transactions of electricity*
1	Rajasthan	606.62
2	Andhra Pradesh	515.22
3	Kerala	435.20
4	Tamilnadu	378.86
5	Gujarat	355.63
<u>6</u> 7	MP Uttarakhand	351.99 306.22
8	Bihar	192.74
9	J&K	188.19
10	Himachal Pradesh	187.35
11	Maharashtra	139.10
12	Punjab	76.33
13	Assam	67.94
14	Meghalaya	60.41
15	CGPL Part of Name Hand	41.25
16 17	Dadra & Nagar Haveli Arunachal Pradesh	36.15 20.25
18	Jharkhand	18.68
19	Nagaland	14.69
20	RGPPL	9.49
21	Daman and Diu	8.43
22	Manipur	7.80
23	Mizoram	4.98
24	Meenakshi	0.87
25	NSPCL	0.23
26	SIMHAPURI	0.10
27 28	LANCO BUDHIL EMCO	0.00
29	VANDANA VIDYUT	0.00
30	GOA	-0.17
31	BALCO	-0.39
32	Tripura	-0.56
33	NEEPCO Stations	-2.88
34	NJPC	-3.40
35	LANKO_KONDAPALLY	-5.15
36	AD HYDRO	-7.57
37	Sikkim	-10.99
38 39	ACBIL ADHUNIK POWER LTD	-14.04 -25.41
40	ADANI HVDC	-30.20
41	MAITHON POWER LTD	-36.26
42	Pondicherry	-38.17
43	SHREE CEMENT	-56.40
44	KARCHAM WANGTOO	-63.97
45	DCPP	-68.78
46	Orissa	-73.42
47	West Bengal	-80.60
48 49	LANKO_AMK	-81.87
50 50	Chattisgarh UT Chandigarh	-90.60 -95.62
51	NHPC Stations	-95.62 -120.42
52	DVC	-149.01
53	Haryana	-162.67
54	Uttar Pradesh	-236.42
55	STERLITE	-397.30
56	JINDAL POWER	-550.76
57	Karnataka	-698.19
58	Delhi	-912.82

Table-16: DETAILS OF CONGESTION IN POWER EXCHANGES, FEBRUARY 2013							
	Details of Congestion	IEX	PXIL				
Α	Unconstrained Cleared Volume* (MUs)	2513.75	147.50				
В	Actual Cleared Volume and hence scheduled (MUs)	1975.42	36.97				
С	Volume of electricity that could not be cleared and hence not scheduled because of congestion (MUs) (A-B)	538.33	110.53				
D	Volume of electricity that could not be cleared as % to Actual Cleared Volume	21.42%	74.93%				
Е	Percentage of the time congestion occurred during the month (Number of hours congestion occurred/Total number of hours in the month)	100.00%	100.00%				
F	Congestion occurrence (%) time block wise						
	0.00 - 6.00 hours	25.00%	25.00%				
	6.00 - 12.00 hours	25.00%	25.00%				
	12.00 - 18.00 hours	25.00%	25.00%				
	18.00 - 24.00 hours 25.00% 25.00%						
* This	power would have been scheduled had there been no congestion.						
Source	e: IEX and PXIL						

Table-17: V						
Date	Date Volume# of day ahead market)		Unscheduled Interchange (Over	Total Electricity Generation (MUs) as given at CEA Website*		
	Through Traders and PXs**	Direct	IEX	PXI	Drawl+Under Generation)	
1-Feb-13	96	35	72.82	0.96	48	2528
2-Feb-13	97	35	76.05	1.56	50	2531
3-Feb-13	99	32	70.98	1.78	54	2462
4-Feb-13	98	34	71.00	1.51	61	2445
5-Feb-13	105	34	67.33	1.43	70	2318
6-Feb-13	101	34	62.08	1.09	57	2420
7-Feb-13	85	37	63.21	1.10	64	2423
8-Feb-13	91	35	65.49	1.18	56	2466
9-Feb-13	91	34	66.17	0.94	52	2474
10-Feb-13	94	35	66.80	1.04	61	2449
11-Feb-13	97	35	68.91	1.28	54	2497
12-Feb-13	100	34	68.95	1.25	48	2521
13-Feb-13	101	34	70.59	1.53	51	2541
14-Feb-13	101	34	72.64	1.67	51	2546
15-Feb-13	102	33	71.88	2.20	53	2513
16-Feb-13	103	33	66.92	1.68	66	2391
17-Feb-13	101	33	62.39	1.30	54	2249
18-Feb-13	105	33	67.08	1.29	47	2352
19-Feb-13	97	33	68.45	1.26	44	2396
20-Feb-13	88	33	69.83	1.10	50	2384
21-Feb-13	93	33	71.08	0.78	51	2400
22-Feb-13	95	33	76.36	0.91	54	2441
23-Feb-13	98	33	81.30	1.35	60	2450
24-Feb-13	88	33	70.78	1.24	57	2363
25-Feb-13	89	34	76.93	1.30	51	2438
26-Feb-13	86	35	73.64	1.34	58	2468
27-Feb-13	92	35	77.13	1.35	57	2486
28-Feb-13	88	35	78.63	1.55	55	2508
Total Source: NLDC	2680.55	949.90	1975.42	36.97	1534.05	68458.78

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.

Table	Table-18: PRICE OF SHORT-TERM TRANSACTIONS OF ELECTRICITY (₹/kWh), FEBRUARY 2013 (DAY-WISE)											
Market Segment	Day ahead market of IEX			Day ahead market of PXIL			Under Drawl/Over Drawl from the Grid (UI)				(וע	
	Mini-	Maxi-	Weighted	Mini-	Maxi-	Weighted		NEW Gr	id		SR Grid	
Date	mum ACP	mum ACP	Average Price*	mum ACP	mum ACP	Average Price*	Mini- mum Price	Maxi- mum Price	Average Price**	Mini- mum Price	Maxi- mum Price	Average Price**
1-Feb-13	1.19	15.00	3.22	1.90	3.20	2.53	0.00	7.93	2.72	1.65	8.49	4.67
2-Feb-13	1.20	19.10	3.05	2.00	4.01	2.61	0.00	7.37	2.30	0.99	7.93	4.36
3-Feb-13	1.15	12.00	2.63	2.00	4.01	2.60	0.00	5.06	1.86	0.50	7.65	4.07
4-Feb-13	1.19	16.00	3.39	1.86	4.50	2.56	0.00	4.50	1.30	0.33	7.65	3.99
5-Feb-13	1.24	19.11	2.94	1.84	4.01	2.60	0.00	5.34	1.48	1.49	10.80	4.88
6-Feb-13	1.20	20.00	2.70	1.80	3.69	2.44	0.00	3.36	1.02	0.83	7.65	4.33
7-Feb-13	1.24	16.00	2.83	1.80	3.00	2.40	0.00	4.78	1.33	0.50	7.37	3.84
8-Feb-13	1.11	18.65	3.03	1.71	3.68	2.40	0.00	4.78	1.29	0.00	7.09	4.05
9-Feb-13	1.11	17.00	2.94	1.75	2.70	2.30	0.00	4.22	1.44	0.00	7.93	3.70
10-Feb-13	1.04	16.60	2.66	1.79	15.70	2.36	0.00	3.93	1.15	0.00	5.91	3.17
11-Feb-13	1.04	18.00	3.03	1.85	3.68	2.50	0.00	5.91	1.66	0.00	8.78	3.61
12-Feb-13	1.00	19.50	2.92	1.83	3.00	2.46	0.00	5.34	1.64	0.00	7.65	3.97
13-Feb-13	1.00	14.00	2.82	2.00	2.75	2.45	0.00	7.37	1.82	0.33	7.93	4.56
14-Feb-13	1.00	16.50	2.99	1.85	3.05	2.57	0.00	4.78	1.73	0.00	8.78	3.92
15-Feb-13	1.00	16.00	2.84	1.84	3.09	2.52	0.00	4.50	1.35	0.00	7.65	3.63
16-Feb-13	1.50	16.00	2.78	1.83	3.00	2.46	0.00	4.50	1.21	0.00	5.91	2.55
17-Feb-13	0.10	20.00	2.97	1.79	3.60	2.25	0.00	7.65	1.74	0.00	7.65	2.56
18-Feb-13	0.10	13.00	2.78	1.85	3.60	2.36	0.00	5.06	1.47	0.00	5.91	3.15
19-Feb-13	0.10	20.00	2.94	1.60	3.65	2.33	0.00	7.37	1.86	0.83	7.09	3.55
20-Feb-13	0.10	20.00	2.83	1.65	2.73	2.35	0.00	8.21	1.87	0.00	8.49	3.67
21-Feb-13	0.75	18.00	3.09	1.62	2.72	2.19	0.00	5.06	1.65	0.00	9.62	3.80
22-Feb-13	1.19	19.00	3.03	1.61	2.73	2.30	0.00	8.21	1.72	0.83	8.49	4.40
23-Feb-13	1.10	19.00	3.00	1.50	2.73	2.23	0.00	3.65	1.05	0.00	7.65	3.71
24-Feb-13	0.05	20.00	2.48	1.65	3.75	2.27	0.00	4.78	1.20	0.00	7.37	3.34
25-Feb-13	0.75	20.00	2.74	1.60	3.75	2.29	0.00	5.06	1.80	0.99	7.65	3.97
26-Feb-13	0.005	20.00	2.86	2.00	2.80	2.41	0.00	4.78	1.29	0.50	8.21	3.92
27-Feb-13	0.01	20.00	2.77	1.79	2.73	2.36	0.00	3.36	0.96	0.99	8.78	4.37
28-Feb-13	0.01	18.00	2.97	1.65	2.73	2.31	0.00	3.93	0.97	0.66	7.65	3.49
	0.005#	20.00#	2.90	1.50#	15.70#	2.42	0.00#	8.21#	1.53	0.00#	10.80#	3.83

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

Table-19: VOLUME										013
Name of the	Thr	ough Bilat	eral	Throug	h Power Ex	change		UI with Reg	jional Grid	
State/UT/Other Regional Entity	Sale	Pur- chase	Net**	Sale	Pur- chase	Net**	Export (Under Drawl)	Import (Over Drawl)	Net**	Total Net***
Punjab	228.58	9.24	-219.34	0.00	296.54	296.54	45.77	44.89	-0.88	76.33
Haryana	321.45	84.66	-236.79	74.16	109.97	35.81	50.92	89.23	38.31	-162.67
Rajasthan	36.05	467.35	431.30	12.87	272.48	259.61	121.44	37.15	-84.29	606.62
Delhi	524.71	15.19	-509.52	333.09	3.91	-329.18	84.91	10.78	-74.13	-912.82
Uttar Pradesh	112.20	62.58	-49.62	0.00	0.00	0.00	217.26	30.46	-186.80	-236.42
Uttarakhand	0.00	266.76	266.76	1.25	37.46	36.21	25.93	29.19	3.26	306.22
Himachal Pradesh	46.89	261.35	214.45	20.01	1.34	-18.67	23.73	15.30	-8.43	187.35
J&K	10.84	272.86	262.01	14.73	0.00	-14.73	74.24	15.14	-59.10	188.19
UT Chandigarh	97.88	0.00	-97.88	2.31	0.01	-2.30	3.71	8.27	4.56	-95.62
MP	6.91	420.59	413.68	85.08	44.12	-40.96	65.32	44.59	-20.73	351.99
Maharashtra	0.00	57.79	57.79	43.59	113.53	69.95	65.25	76.61	11.36	139.10
Gujarat	137.19	131.63	-5.56	271.62	578.47	306.85	47.35	101.69	54.34	355.63
Chattisgarh	196.94	74.04	-122.90	36.15	18.11	-18.05	17.37	67.72	50.35	-90.60
Daman and Diu	0.00	0.00	0.00	0.00	0.00	0.00	1.72	10.15	8.43	8.43
Dadra & Nagar Haveli	0.00	47.04	47.04	0.00	0.00	0.00	13.54	2.65	-10.89	36.15
Andhra Pradesh	0.00	245.92	245.92	55.04	319.50	264.46	21.35	26.20	4.85	515.22
Karnataka	307.66	0.00	-307.66	386.98	9.73	-377.24	23.72	10.43	-13.29	-698.19
Kerala	0.00	336.50	336.50	0.00	41.57	41.57	1.07	58.20	57.13	435.20
Tamilnadu	0.00	266.98	266.98	0.00	80.11	80.11	11.17	42.94	31.77	378.86
Pondicherry	0.00	0.00	0.00	0.00	0.00	0.00	38.17	0.00	-38.17	-38.17
West Bengal	335.08	147.02	-188.06	14.09	45.27	31.17	15.12	91.41	76.29	-80.60
Orissa	135.39	0.10	-135.29	8.14	0.00	-8.14	6.84	76.85	70.01	-73.42
Bihar	0.00	191.17	191.17	0.00	0.00	0.00	15.45	17.02	1.57	192.74
Jharkhand	95.34	106.41	11.07	0.00	0.00	0.00	15.60	23.21	7.61	18.68
Sikkim	0.00	2.07	2.07	7.79	0.00	-7.79	6.92	1.65	-5.27	-10.99
DVC	236.45	54.41	-182.04	10.13	0.00	-10.13	13.05	56.21	43.16	-149.01
Arunachal Pradesh	0.00	0.00	0.00	0.00	9.26	9.26	0.34	11.33	10.99	20.25
Assam	0.00	62.42	62.42	0.00	16.10	16.10	15.29	4.71	-10.58	67.94
Manipur	0.00	0.00	0.00	0.00	0.00	0.00	1.97	9.77	7.80	7.80
Meghalaya	0.00	51.97	51.97	1.02	5.99	4.97	3.29	6.77	3.47	60.41
Mizoram	0.00	0.00	0.00	0.00	0.00	0.00	0.25	5.23	4.98	4.98
Nagaland	0.00	0.00	0.00	0.00	6.97	6.97	0.23	7.96	7.72	14.69
Tripura	2.52	1.57	-0.96	4.18	0.25	-3.94	1.73	6.06	4.33	-0.56
GOA	0.00	0.00	0.00	0.00	1.71	1.71	13.14	11.26	-1.88	-0.17
NHPC Stations	0.00	0.00	0.00	106.82	0.00	-106.82	54.11	40.51	-13.60	-120.42
NJPC	0.00	0.00	0.00	0.00	0.00	0.00	8.01	4.61	-3.40	-3.40
AD HYDRO	7.32	0.00	-7.32	1.31	0.00	-1.31	0.68	1.73	1.05	-7.57
KARCHAM WANGTOO	18.39	0.00	-18.39	44.59	0.00	-44.59	3.64	2.65	-0.99	-63.97
SHREE CEMENT	36.05	0.00	-36.05	20.16	0.00	-20.16	3.44	3.25	-0.19	-56.40
LANCO BUDHIL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ADANI HVDC	0.00	0.00	0.00	30.20	0.00	-30.20	0.00	0.00	0.00	-30.20
JINDAL POWER	340.48	0.00	-340.48	211.30	0.00	-211.30	6.09	7.11	1.02	-550.76
LANKO_AMK	68.75	0.00	-68.40	0.00	0.00	0.00	22.09	8.62	-13.47	-81.87
NSPCL	0.00	0.00	0.00	0.00	0.00	0.00	1.03	1.26	0.23	0.23
ACBIL	0.77	0.00	-0.77	11.10	0.00	-11.10	3.86	1.67	-2.18	-14.04
BALCO	0.00	0.00	0.00	0.06	0.00	-0.06	1.28	0.95	-0.33	-0.39
RGPPL	0.00	0.00	0.00	0.00	0.00	0.00	0.14	9.63	9.49	9.49
CGPL	0.00	0.00	0.00	0.00	0.00	0.00	2.48	43.73	41.25	41.25
DCPP	0.00	0.00	0.00	70.13	0.00	-70.13	3.78	5.13	1.36	-68.78
VANDANA VIDYUT		0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00
LANKO KONDAPALLY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
_	5.84	0.00	-5.84	0.00	0.00	0.00	0.06	0.75	0.69	-5.15
SIMHAPURI	0.00	0.00	0.00	2.23	0.00	-2.23	0.88	3.22	2.33	0.10
Meenakshi	0.00	0.87	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.87
STERLITE MAITHON BOWER LTD	307.97	0.00	-307.97	96.90	0.00	-96.90	6.70	14.28	7.58	-397.30
MAITHON POWER LTD	24.89	0.00	-24.89	7.97	0.00	-7.97	7.83	4.42	-3.41	-36.26
ADHUNIK POWER LTD	0.00	0.00	0.00	25.41	0.00	-25.41	0.00	0.00	0.00	-25.41
NEEPCO Stations	0.00	0.00	0.00	2.01	0.00	-2.01	4.16	3.28	-0.88	-2.88
Source: NLDC										

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

٦	Table-20 : VOLUME AND PRICE OF RENEWABLE ENERGY CERTIFICATES (RECS) TRANSACTED THROUGH POWER EXCHANGES, FEBRUARY 2013					
0 - N -	IEX PXIL					
Sr.No.	Details of REC Transactions	Solar	Non-Solar	Solar	Non Solar	
А	Volume of Buy Bid	4574	48093	2203	104859	
В	Volume of Sell Bid	2416	1526114	310	216307	
С	Ratio of Buy Bid to Sell Bid Volume	1.89	0.03	7.11	0.48	
D	Market Clearing Volume (MWh)	1924	48093	310	104859	
E	Market Clearing Price (₹/MWh)	12500	1500	13000	1500	

Source: IEX and PXIL
Note 1: 1 REC = 1 MWh

Note 2:

Forbearance and Floor Price w.e.f 1st April 2012						
Type of REC Floor Price (₹/MWh) Forbearance Price (₹/MWh						
Solar	9300.00	13400.00				
Non-Solar	1500.00	3300.00				