

INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, ECONOMICS AND MANAGEMENT

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ELECTRICITY EXCHANGE IN INDIA: A STUDY OF INDIAN ENERGY EXCHANGE

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ABSTRACT

Electricity Exchange is newly introduced concept in India and also the new term in the trading market. In India electricity sector reforms are in the primary stage as far as electricity trading is concerned. India is currently undertaking the reforms of its electricity sector. Electricity sector restructuring is expected to absorb private investment, increase efficiency, promote technical growth and improve customer satisfaction as different parties compete with each other to win their market share and remain in business under Electricity Exchanges. Indian Energy Exchange (IEX) is the first Electricity Exchange in India which was established on 27th June 2008. In this paper an attempt has been made to explore the role of Indian Energy Exchange, Functions and performance of Indian Energy Exchange in Indian scenario.

KEYWORDS

Electricity Exchange, Indian Energy Exchange.

INTRODUCTION

India's electricity sector is currently undergoing reform to introduce competition to the market. The reform process began in 1990 but the progress in the subsequent years has been slow. New legislation Electricity Act, 2003 was passed and the government intends to accelerate the process of reform. Although there are many agenda for the intended reform, one of the priorities is to facilitate nationwide electricity trading at the wholesale level. Such trading activity is expected to develop an efficient wholesale electricity market in India, which is key to the success of the sector's reform. An open, transparent marketplace would reveal the inefficiencies of the current system and encourage competition among generators to improve the sector's economic efficiency. In India electricity sector reforms are in the primary stage as far as electricity trading is concerned. India is currently undertaking the reform of its electricity sector. Of course, the ultimate aim of the reform is to remove inefficiencies in various functions of the sector. However, India's electricity industry has been dominated by the public sector, and State Electricity Board is responsible for electricity supply at the state level. There are many electricity exchanges in India like Indian Energy Exchange, Power Exchange India Limited, NTPC.

In India the Indian Energy Exchange is the first exchange of electricity trading and that too automated and online. In a common talk the term power exchange is not clearly understood and of course, it is a new term in India. Here, the word exchange refers to a platform where the buyers and seller come to gather for trade. However, the exchange is not the market but it is the host to a market. Energy exchange refers to trade of energy i.e. to sold and bought.

Indian Energy Exchange is purported to be India's demutualised, first-ever national, automated and online electricity trading platform. There is a clear in-built ring-fencing between promoters, management and participants, efficient financial clearing; besides market surveillance to check collusion, unfair practices and gaming. IEX provides its participants, a day ahead, standard hourly contracts and block contracts. Hourly contracts provide considerable flexibility by allowing operators to fine-tune their needs over the delivery day.

On 6th February 2007, the CERC issued guidelines for grant of permission to set up power exchanges in India. Financial Technologies (India) Ltd responded by proposing then tentatively named 'Indian Power Exchange Ltd' and applied for permission to set it up and operate it within the parameters defined by CERC and other relevant authorities. Based on the oral hearing on July 10, the CERC accorded its approval vide its order dated 31st August, 2007. IEX thus moved from the conceptual level to firmer grounds. On 9th June 2008 CERC accorded approval to IEX to commence its operations and 27th June 2008 marked its presence in the history of Indian Power Sector as IEX.

FEATURES OF INDIAN ENERGY EXCHANGE

- Nationwide, Online and Electronic platform
- Voluntary participation.
- Neutral, Unbiased and Transparent
- Offer Day-Ahead Market(DAM)
- Exchange time-line consistent with time-line of Load Dispatch Centres
- The activities of the Exchange are carried out in accordance with the "Central Electricity Regulatory Commission (Open Access in inter-State Transmission) Regulations, 2008", dated 25.01.2008, as revised from time to time and Procedure for scheduling of collective transaction issued by the Central Transmission Utility (PGCIL) and the Bye-Laws, Rules and Business Rules of the Exchange.

VISION OF INDIAN ENERGY EXCHANGE

They envision an India where the quality of life of the common citizen, rural or urban, is not compromise as a result of power shortage. They indeed envision a power-surplus India and a committing healthy competition in the electricity market for the ultimate benefit of the consumer, domestic and industrial. They envision the arrival and consolidation of such an era through investment from all sources and use of sophisticated market mechanisms.

MISSION OF INDIAN ENERGY EXCHANGE

To accomplish their vision by providing the nation with-and enhancing the utility of-their robust, scalable and customizable electronic trading, clearing, risk management, surveillance and counter –party trade guarantee. They shall not swerve from their commitment to enable an efficient, neutral and transparent price discovery mechanism for the benefit of all stakeholders in the system including generators, distributing licensees, traders and consumers.

BENEFITS OF INDIAN ENERGY EXCHANGE

IEX provides a platform for the buyer & sellers to purchase the electricity on actual demand and supply of energy. The participants can bid for buy and sell electricity for 24 hour during the trading hours .i.e. 10.00 am-12.00 pm. The buyers & sellers can be any individual but has to trade through the member. The member of IEX can be Generators, Distribution Licensees, Independent Power Producer (IPPs), Captive Power Producers (CPPs), Merchant Power Plants (MPPs), traders and others eligible to be a member. The minimum net worth for the purpose of membership eligibility is Rs. 150 lakhs. The following are the eye catching benefits of IEX:

- Transparency: IEX offers a transparent, national-level platform for trading electricity in India leading to a vibrant power market.
- Access a diversified portfolio: IEX offers a broader choice to generators and distribution licensees at the national-level so that they can trade in smaller quantities and smaller number of hours without additional overheads.
- · Payment security: IEX stand in as the counter-party for all trades; so participants need not be concerned about the risk-profile of the other party.
- Minimal transaction overheads/charges: All charges are displayed on the IEX trading terminals; so there is no room for negotiation. The cost of transactions through IEX is much less than any other mode of transaction.
- Efficient portfolio management: IEX enables participants to precisely adjust their portfolio as a function of consumption or generation. Participants, especially distribution licensees, are enabled to precisely manage their consumption and generation pattern.
- Hedging UI risks: IEX provides a tool to hedge against adverse movements in electricity prices. Thus, price risks are minimized.
- Market development: IEX has plans to launch a range of products to facilitate development of power markets in India in such a way that investment in capacity enhancement is encouraged.

PROMOTERS OF INDIAN ENERGY EXCHANGE

IEX is promoted by Financial Technologies (India) Ltd, and PTC India Ltd. Following is the brief descriptions of the promoters.

- Financial Technologies India Itd:IEX has been promoted by Financial Technologies (India) Ltd and PTC India Ltd, and its other shareholders are Reliance Energy, Tata Power Company, Lanco Infratech, Adani Enterprises, REC, and Infrastructure Development Finance Company (IDFC). Financial Technologies has a 90% share of the electronic exchange and online brokerage solutions market in India. The company's solutions power six exchanges and 750 out of the 800-odd brokerage houses operating over 1, 40,000 trading terminals on a daily basis. IEX will be the seventh exchange to be powered by Financial Technologies.
- Power Trading Corporation Ltd: PTC India Financial Services Limited (PFS) is an investment special purpose vehicle (SPV) of PTC India Limited (PTC) established with the mandate to provide financial services in the energy value chain. The company was incorporated during September 2006 and commenced its business from May 2007.

STAKEHOLDERS OF INDIAN ENERGY EXCHANGE

- Adani Enterprises
- 2. Infrastructure Development Finance Company
- 3. Jindal Power Limited
- 4. Lanco Infratech
- 5. Reliance Energy
- 6. Rural Electrification Corporation (REC)
- 7. Tata Power Company

MEMBERSHIPS OF ASSOCIATIONS OF INDIAN ENERGY EXCHANGE

- 1. Council of Power Utilities
- 2. Association Power Exchanges

WHO CAN BE A MEMBER OF INDIAN ENERGY EXCHANGE?

Entities that fall within one of the following categories are eligible to apply for membership-

- Inter-State Generating Stations (ISGSs)
- Distribution Licensees
- State Generating Stations
- IPPs
- CPPs & IPPs with consent from SLDC.
- Open Access Consumers with consent from SLDC.
- · Electricity traders
- Brokers / Marketers

MEMBERSHIP FEES

Member will pay admission fees at the time of registration which will be non-refundable. He is required to pay annual subscription every year before beginning of the financial year. The membership fees are:

- Admission Fee
- Initial Security Deposit
- Annual Registration Fee
- Processing Fee

PERFORMANCE OF INDIAN ENERGY EXCHANGE

IEX is purported to be India's demutualised, first-ever national, automated and online electricity trading platform. There is a clear in-built ring-fencing between promoters, management and participants, efficient financial clearing; besides market surveillance to check collusion, unfair practices and gaming. IEX provides its participants, a day ahead, standard hourly contracts and block contracts. Hourly contracts provide considerable flexibility by allowing operators to fine-tune their needs over the delivery day.

Currently 90% of electricity is sold through long-term, bilateral power purchase agreements between buyers and producers. Yet distributors rely on traders for short-term needs. The deals negotiated over telephone and other means often tend to be non-transparent and counterparty's are never sure whether they have got the best right price in the deal. IEX is a spot exchange where actual demand/supply of energy takes place and price of electricity determined on the basis of bids and offers during the transaction period. IEX is a spot exchange where actual demand/supply of energy takes place and price of electricity determined on the basis of bids and offers during the transaction period.

Here in this study the performance is taken into account for the year 2009.

ELECTRICITY TRANSACTED DURING THE YEAR 2009 (VOLUME WISE)

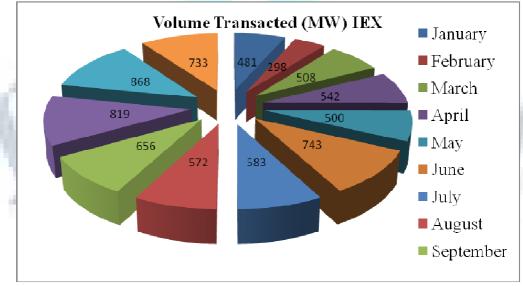
ELECTRICITY TRANSACTED DURING THE YEAR 2009

Months	Total market volume cleared(MUs)	Total Market Volume (MW)
January	291	481
February	180	298
March	377	508
April	376	542
May	323	500
June	478	743
July	434	583
August	486	572
September	472	656
October	536	819
November	638	868
December	541	733
Total	5132	7303
Average	427.67	608.58

TOTAL CLEARED VOLUMES (MUS) IN IEX



TOTAL CLEARED VOLUMES (MW) AT IEX



The given table depicts volume of electricity traded by IEX for the period of January 2009 to December 2009 in terms of MUs and MW. During the first five months of the year the fewer MUs were transacted. However, in the latter period it reached to 638 MUs in the month of November and in the same period total volume cleared in terms of MW were 868 MW. Average market volume transacted for the year 2009 was 427.67 and 608.58 in terms of MUs and MW respectively.

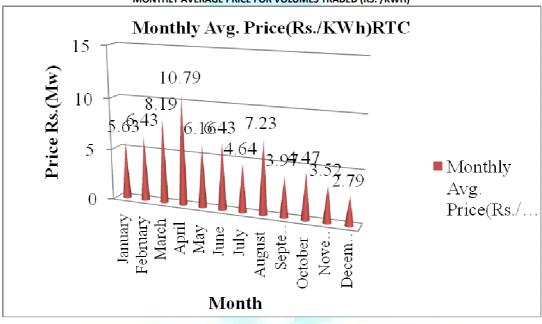
The above column chart represents the electricity traded during the year of 2009 through this exchange. The highest volume traded was in the month of November (683MUs), and the lowest was in the month of February that is 180 MUs. Overall the trading was above 400MUs except in the month of January and February. From the drawn chart 5.2 of market volume cleared (Mw), it depicts that the trading was averagely remained nearly 500Mws in 2009. However, it was the highest in the month of November with highest trade of 868Mws, followed by the month with second highest in the month of October. February has the lowest cleared volume with only 298Mws.

MONTHLY AVERAGE PRICE FOR VOLUMES TRADED (RS. /KWH)-2009

MONTHLY AVERAGE PRICE FOR VOLUMES TRADED (RS. /KWH)

Month	Monthly Avg. Price (Rs./KWh)RTC	Maximum Price (Rs./KWh)	Minimum Price (Rs./KWh)
January	5.63	8.10	1.59
February	6.43	10.00	1.59
March	8.19	13.10	0.59
April	10.79	14.9	2.97
May	6.16	15.00	0.12
June	6.43	13.65	2.97
July	4.64	9.00	0.22
August	7.23	16.00	0.80
September	3.97	8.00	0.66
October	4.47	8.00	1.74
November	3.52	6.29	1.39
December	2.79	5.7	0.57

MONTHLY AVERAGE PRICE FOR VOLUMES TRADED (RS. /KWH)



MAXIMUM AND MINIMUM TRADING PRICES AT IEX -



The table represents monthly total average price along with Maximum and Minimum price in Rs. /KWh for the selected period. From the average monthly price point of view, the month of April is having the top price. In the other months it varies from Rs.3 to Rs.8.It can be seen that April is the month where it is the peak price i.e. Rs.10.79.On the other hand the lowest price dropped up to Rs.2.79 in the month of December. The price for electricity traded fluctuates from time to

time. Generally it happens to peak price and low price of the day, month and yearly. During the year 2009 the lowest minimum price was Rs.0.57 in the month of December 2009. The maximum price reached to Rs.16.00 in the month of August. There is wide gap between the both prices since, it reaches to below rupees. Moreover, maximum is above Rs. 8 except in the month of November and December 2009. The both the information given in the table is also shown in the form of chart. Chart 5.3 is about monthly average price for volumes traded (Rs. /kWh) and chart 5.4 is for maximum and minimum trading prices at IEX -2009.

PURCHASE AND SALES BIDS (MUS)

PURCHASE AND SALES BIDS (MUs)

Months	Total Purchase Bids (MUs)	Total Sales Bids(MUs)
January	741	831
February	437	454
March	727	654
April	832	487
May	574	1018
June	825	822
July	908	927
August	995	597
September	881	936
October	1034	890
November	854	1275
December	821	1359
Total	9629	10250
Average	802.41	854.16

PURCHASE AND SALES BIDS (MUs)



The table shows the data of purchase and sales bids at IEX in MUs during the selected period i.e.12 months of the year 2009. It is the October 2009 where the purchase bids were higher than other months with 1034 MUs and on the other hand in the month of December 2009 sales bids were on the top with 1359 MUs. The sales bids were higher than purchase bids except March, April and June. Furthermore sales bids reached above 1000 for three times whereas purchase bids only for once and i.e. during the month of October 2009 which is also the highest one whole through the year. Averagely the purchase and sales bids were almost nearer to each other i.e. 802.41 and 854.16 respectively.

CONCLUSION

After approval of Central Electricity Regulatory Commission accorded approval to Indian Energy Exchange to commence its operations, it came into existence as a trading centre for electricity. Currently, Indian Energy Exchange is purported to be India's demutualised, first-ever national, automated and online electricity trading platform. There is a clear in-built ring-fencing between promoters, management and participants, efficient financial clearing; besides market surveillance to check collusion, unfair practices and gaming. Indian Energy Exchange provides its participants, a day ahead, standard hourly contracts and block contracts. Hourly contracts provide considerable flexibility by allowing operators to fine-tune their needs over the delivery day. Indian Energy Exchange provides a platform for the buyer & sellers to purchase the electricity on actual demand and supply of energy. The types of market under Indian Energy Exchange are Day Ahead Market and Term Ahead Market, again under Term Ahead Market there are Intraday Contracts, Day Ahead Contingency Contracts, Daily Contracts and Term Ahead Contracts, i.e. other than daily and weekly base.

The volume of transaction and no. of transaction in IEX is going high and high, indicate sheer success of this market. Surly this exchange will provide platform to investor to get fair value of its product with transparent policy for transaction. In long run this will help India in situation where Electricity is at short supply.

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With sincere regards

Thanking you profoundly

Academically yours

Sd/-

Co-ordinator