

UNIT 6

TRADING OF ELECTRICITY

*“I can't understand why people are frightened by new ideas.
I am frightened of the old ones.”*
John Cage

6.1 Background

In order to turnaround the power sector, comprehensive reforms have been initiated and a new legislation (The Electricity Act 2003) has been enacted. This would lead to evolution of the generation sector based on open market environment and cost competitive regime. Power Trading has been recognized as a distinct activity in the National electricity Market. The Electricity Act 2003 (Hereinafter referred to as The Act) recognizes the need for robust and active trading market. However it is silent on the design of the power market.

The Conventional view is that only the entity which owns the electricity network can transfer the electricity through the network. The Conventional view is analogous to requiring that every road-user needs to have a proprietary road-network. The Act envisages separation between Carriage (Hard wear in the form of wires) and Content (energy in the form of Electricity). The separation between the transport business and the trading separates the natural monopoly.

6.2 What is Power Trading?

Transaction of power where the price is negotiable and option exist about whom to trade with and for what quantum¹. This can be called power trading in a generic sense. Due to development of power

¹ Definition used by TN Thakur (PTC)

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market a secondary market has also developed for financial transaction such as hedging and futures trading .The Electricity Act 2003 defines trading to mean

“Purchase of electricity for resale thereof and the expression “Trade” shall be construed accordingly”²

The definition is very simplistic which talks about only physical trading and excludes any mention of financial trading. The Secondary market for trading hopefully will be covered in the National Electricity Policy.

6.3 Opportunities for Power Trading

India has vast potential in the field of Power Trading. In short the impact of trading can be felt in following areas.

- Generation of Power by hydro power stations is weather sensitive. This causes surplus in high hydro season and shortage in low hydro season. This can be leveraged by trading entities.
- Demand of power is weather sensitive in general and time sensitive in metropolitan areas, this also creates opportunities for an electricity traders.
- Captive Power Plants and few upcoming Merchant power plants have Substantial surplus capacity which can leveraged for trading activities.

6.4 Who is an Electricity Trader?

The Act defines trader to mean –

“Electricity trader” means a person who has been granted a license to undertake trading in electricity under section 12.

² Section 2(71)

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It is clear that trading will imply two activities Purchase of Electricity and selling of electricity. However to be an electricity trader you need only have a license from the appropriate commission. This means that even if you do not do any business relating to electricity utility, you can be an electricity trader if the appropriate commission provides you with a trading license. Furthermore by virtue of Proviso 9 section 14 a Distribution licensee has been exempted from taking a trading license. This enables him to buy electricity from any Market or future trading Exchange for the purpose of utilization of Electricity in his own area of supply.

6.5 Trading entities

The Electricity act states that no person shall take up trading in Electricity unless he is authorized to do so by appropriate commission. The person³ includes any company or body corporate or association or body of individuals, whether incorporated or not, artificial juridical person.

The Distribution licensee has been specifically exempted from taking a separate trading license. On the other hand following entities have been excluded from trading in electricity –

- 1.) The National Load Dispatch Centre
- 2.) The regional Load Dispatch Centre
- 3.) The State Load Dispatch Centre
- 4) The Central Transmission Utility
- 5) The State Transmission Utility
- 6) A Transmission Licensee

For the sake of greater efficiency the Electricity Act specifies that some entities will not need trading license, they will be deemed holder of a trading license –

1. Distribution licensees

³ Section 2(49)

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2. Central/State Government if it wishes to do trading in Electricity⁴
3. Notification of CERC can enable any local authority, Panchayat institution , users association, co-operative societies, NGOs or franchisees to take up trading .

The Exclusion of transmission utilities from trading in Electricity and mandating them to provide non-discriminatory open access provides a level playing field for trading of Electricity.

6.6 Players in the trading of electricity

Six Entities as of November 2003, have applied for a National or Inter-State Trading license, namely-

- Power Trading Corporation (PTC),
- Reliance Energy Power Trading Corporation Limited (REPTCL)
- Amalgamated TransePower(ATP)
- Essar energy
- Koila Energy
- Adani group

PTC is the first entity created by the Government with various players having equity to take up trading in Electricity. REPTCL is a recently launched company by the Reliance Energy (Formerly called as BSES). Amalgamated Transpower has few Hydro Power Stations in the State of Sikkim. Probably for some time it shall be a regional player in the trading industry.

6.7 Advantages of Power Trading

Trading of Power has many advantages –

- **Advantages for generators**
 - Will have more avenues when they sell excess of power.
 - Increased utilization of existing resources

⁴ Proviso 3 of Section 14 of electricity Act 2003

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- o Will lead to Increase in PLF and generation efficiencies.
- o The Bottled up capacities of Captive Power Plants and Merchant Power Plants will be unlocked.
- **Advantages for Transmission licensee**
 - o There will be Better grid discipline and energy security as scheduled exchanges increase.
 - o Improved utilization of transmission capacities will lead to assured revenue flow and more investment in the transmission infrastructure.
- **Advantages for Distribution licensee**
 - o Reliability of power supply to the consumer will increase.
 - o Trading of electricity will also improve quality of power in terms of frequency excursion and voltage.
 - o Avenues for reduction in cost of power through time of day trading.
 - o Overall reduction in cost of power with phasing out of surcharges.
- **Advantage for Consumers**
 - o Shortages in deficit locations minimized.
 - o Could help differing of investment for additional generation capacity. May lead to Lower cost of power due to deferment of new investments.
 - o Will Reduced environmental degradation because of better utilization of existing resources and reduction in new project related activity.
 - o Enhanced energy security.
 - o Helps in reduction in average cost of Power to some extent

The immediate visible benefit may mean that the hydro stations will not use water during off-peak hours .They may use it only during peak hours and get peaking tariff for it .Base load can be supplied by Thermal Generation. The state of Himachal Pradesh has made Energy banking arrangements. Similarly Uttaranchal has also made energy banking arrangements with Punjab State Electricity Board. This kind of arrangement will make the system more efficient. This can also be adopted by other electricity entities.

6.8 International power Trading

There is growing acceptability of International trading .Diversity of demand and different capability of generation leads to scope for International exchange of Power. Italy for example imports most of its power requirement from France. In Indian subcontinent there is a large Hydro potential in Bhutan and Nepal and there is large Natural gas resource in Bangladesh. India which circumscribes all the three countries almost from three sides can be a potential market for energy trading.

The Electricity Act is silent on the issue of International Electricity trading .It seems that the process of International Trading will be through Government to Government agreement. We have arrangement for electricity transfer from Nepal and Bhutan and probably as the Electricity markets grow there is a possibility that Indian Subcontinent can be an integrated Electricity Market.

With Nepal We have identified three forms of Power exchanges-

- (I) Exchange of power on bilateral basis at the border
- (II) Trading of saleable power
- (III) Supply of power under treaty

Power Trading Corporation acts as nodal agency for the first two categories of Power exchange.

6.9 Inter-State Power Trading

In India volume of Electricity exchange is very low .It is as low as 2.5% in the year 2002.There is little or no choice to Buyer and Seller because pricing as of now is determined by Regulatory Commissions (before it was decided by State Government)

The Electricity Act provides that the license for Interstate Electricity Trading shall be provided for by the CERC. Due to diversity

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in demand in various regions of the country there is great scope of inter and intra –regional exchanges of power. The CERC has also proposed to various SERCs that they must not insist on any formalities to the interstate trading licensee, they must be provided free access to intra-state trading also. This is a right step and will also avoid complications.

6.10 Intra-State Power Trading

The SERC is empowered to provide license for intra-state trading of electricity. The Distribution licensee have been deemed to be a trading licensee by virtue of proviso 9 of Section 14 of the Electricity Act, Probably they will deepen the market of the intra-State trading of Electricity.

6.11 Reforms in Power Trading

In India now almost all regions have implemented ABT(Availability Based Tariff).this creates a basic step forward toward an efficient electricity market. However there are various issues which needs to be clarified –

- Dose the bill allow groups of consumers to band together to exercise a collective choice in purchasing electricity directly from the most efficient or price attractive supplier or trader of Electricity.
- Can a Trading Company give franchisee to a smaller trading company
- What is the scope of deemed trading status of the Distribution licensee.

6.12 What will the Indian Trading Market be like

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Alternative market for Electricity can be established in India. In a "Day ahead" market or "Spot Market" The Utilities purchase all there energy needs in a 24 hours period. Day ahead or Spot Market create vulnerability and uncertainty since utilities are subject to price spikes when suppliers decide they want to limit the amount of power offered.

It is proposed to go for Control Room depending on feasibility and expected benefits. This will be the first step towards online trading . Implementation of On line Trading would take some more time to become feasible in the country. The Power Trading Corporation is attempting to gain access to online Data and attempt is being made to have such link with northern region by November 2003.

6.13 Power Exchange

It is expected probably India can have power Exchanges as they exist in the developed Electricity Markets. These ideas are at preliminary stage and probably by Mid 2004 they will take some concrete Shape. Some of the International Power exchanges are mentioned in the box.

Countries

Nordic Countries
Holland
UK , Norway, Sweden, Denmark,
Finland
France
Poland
U.S.A.

Power Exchange

Nord Pool
Amsterdam Power Exchange
AP Exchange and Broker M3 Kraft

Power Max
Gielda Energii
Power is traded on multi-comodity Exchanges like-

- Dynergy Direct
- Housten Street
- Trade Spark or
- International Exchange

6.14 Development of Power Exchange

The Power Exchange of India can be regulated by CERC on the same lines as the Stock Exchange is monitored by SEBI. The Power Exchange can be an exclusive Forum for Buy and Sell. It can settle

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imbalances and ensure network access to all concerned entities. The Power Exchange can help in disclosure of Information in relation to Spot Contracts and excess capacity in the network.

Central Electricity Regulatory Commission can Lay down disclosure norms and ensure compliance of all rules and regulations, primarily balancing the interests of various entities in the market.

6.15 Types of Electricity Trading

Wholesale Trading and Retail Trading can also be separated. However in the developed electricity market there are various types of power Trading. Some of the instruments used in Trading of Electricity can be -

1. SWAP System
2. CAP System-Insurance and Hedging for Distribution Licensee
3. FLOOR System – Insurance and Hedging for Generators
4. CALLER System- Combination of CAP and FLOOR
5. Time of day Trading – PTC has introduced the concept.

Newly under the Kyoto Protocol a new market of Energy Certificate trading is also expected to be developed. This may have a great beneficial effect in the trading activity of Indian trading Industry.

6.16 Weather 100% subsidiaries of Distribution Licensee are allowed trading in power

Proviso 9 of section 14 exempts only a distribution licensee from obtaining a trading license to trade in Electricity .Thereby a 100% subsidiary of the Distribution licensee can trade in Electricity by obtaining a separate trading license. However 100% subsidiary of any other utility shall require a separate Trading license from the appropriate Commission.

6.17 Minimum Requirement for Electricity Trader

Section 52 provides for the requirement the entity should fulfill for being an electricity trader. The requirement specified is –

- technical requirement,
- capital adequacy requirement and
- Credit worthiness for being an electricity trader.

The CERC shall provide for the abovementioned requirement in case of an Inter-State trades and the SERC will provide for the requirements in case of Intra State Electricity Trader. Every electricity trader shall discharge such duties, in relation to supply and trading in electricity, as may be specified by the Electricity Commission under whose jurisdiction the trader falls.

6.18 Present Trading in India

The trading activity in India is at a preliminary state and Most of the transactions tend to be short term, although the extreme ends of the duration vary from 3 days to 3 years. Performance Guarantees has now being introduced and most of the transactions are working on `back-to-back` arrangements. Pricing of power also varies with time of flow of power, establishing differentiable characteristics like `Peak`, `Off-Peak` and `Round-the-Clock`.

6.19 Conclusion

New management philosophy and principles are required for real-time operation, maintenance, and up gradation of National electricity Market. The Consultation process for the above is in progress and it is expected that by mid 2004 the final regulations for the same will be out. This will bring in more clarity in the market and

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probably increase the number of Market player consequently deepening the Electricity Market.

Traditionally there have been many impediments to trading in the Electricity market of India such as Demand-Supply Imbalance; Power Grid Underdeveloped; Lack of Open Access; Single Buyer Model and Bankrupt Utilities. The electricity Act 2003 has envisioned amelioration of these difficulties by Deregulating Generation; Increased investment in Transmission And creation of National grid; Surplus Capacity through increased investment by Independent Power Producers and Multiple Buyer Model.