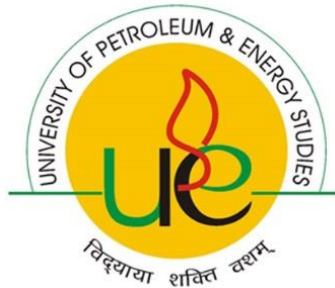


DISSERTATION REPORT

ON

***“Parallel Distribution Licensing in Mumbai
: A benefit of choice to consumers”***

Submitted to the **University of Petroleum & Energy Studies, Dehradun** in fulfillment of the requirements leading to the award of the Degree of MBA in Power Management.



UNDER THE ESTEEMED GUIDANCE OF:

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DECLARATION

I, **VAIBHAV JAIN**, Enrollment No. R130213056, student of MBA-Power Management (2013-15) at University of Petroleum & Energy Studies, Dehradun hereby declare that the Dissertation Report entitled

***“Parallel Distribution Licensing in Mumbai
: A benefit of choice to consumers”***

is an original work and the same has not been submitted to any other institute for the award of any other degree.

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EXECUTIVE SUMMARY

The Electricity Act, 2003 aims at bringing about competition with the ultimate objective of ensuring efficiency gains resulting from competition for the consumers. In the context of competition, open access is the corner-stone of the Electricity Act, 2003. Open Access has been conceived as an important tool of introducing competition in the electricity industry and ensuring choice to buyers and suppliers of electricity. However the same backfired and till date the critical issue of consumer open access storms the power sector. Competition in supply and consumer choice is the hallmark of a competitive market. These are relatively new concepts in power sector in India. The operationalization of parallel distribution license is one of the ways to promote competition in electricity sector. Power industry worldwide has undergone significant changes paving the way for creation of a power market and introduction of competition in wholesale and retail trading of power.

The Indian Power sector is undergoing important transitional changes after the introduction of reforms and restructuring in trade, industry and commerce. With the introduction of reforms and restructuring in the power sector, the generation of power, which was a State monopoly, was thrown open to private sector in order to bring in private investment. The Electricity Act aims at developing the sector further by introducing reforms & restructuring in the areas of transmission and distribution of electricity besides providing a conducive atmosphere for private participation in Transmission and distribution through multiple licensees in these areas.

Power supply and operation of network are two separate businesses in several developed countries. However, the Indian Electricity Act 2003 does not have any explicit provisions to this effect. Though there are enabling provisions for multiple players setting up separate networks in the same circle to supply power, there are few takers for such intra-circle competition with the exception of Mumbai distribution.

The Indian Electricity Industry is moving towards a multi buyer model characterized by multiple players and bilateral contracting wherein there is a need for separation of wires and supply business thereby introducing competition in the retail supply which is the final stage of the reform process.

Separation of carriage and content can definitely bring about transparency in the AT&C losses in the distribution segment. If the responsibilities of the wires business and supply business are separated and given to two distinct entities, the existing perverse tendency of camouflaging theft of electricity (commercial losses) under the overall distribution losses would be discouraged. Also it will create a new class of power retailers adept at buying and selling power without owning the infrastructure.

The major issues facing in respect of implementation of the retail competition by segregation of wires and supply business is the issue of consumer classes in respect of levying of cross subsidy charges, determination of costs of distribution, asset transfer, obligation to supply issue to name a few. The report tries to find a solution to the same by a deep analysis of a few countries like UK, California, Argentina, Spain, Germany who have implemented the same. The same structure is analyzed for the Indian context. Since Mumbai distribution already comprises of the concept of multiple licensing, the case study of Mumbai is taken and a feasibility study is undertaken to implement the same in Mumbai. The report concentrates mainly on the issue of consumer open access and choice, and the possibility of bringing it to reality thereby introducing competition in the retail supply business by drawing conclusion from the reform process adopted by various other countries.

The study shows that the implementation of competition in India, need to overcome various hurdles. It starts from the amendment of the Act to introduce different license for the supply business. The current status of wholesale market in India is next hurdle and there is a lot effort is required in development. Currently less than 10% of the electricity transaction is through the short-term market and open access. This shows the requirement for the growth of market. Treatment of subsidy is another issue to be addressed.

1. Introduction

Power is a critical infrastructure for the growth of Indian economy. Acceleration in the economic growth will depend upon a financially and commercially viable power sector that is able to attract fresh investments. However, the financial health of State Electricity Boards (SEBs) has become a matter of concern considering that their losses have reached an alarming level of Rs.246,000 crore. The gap between average revenue realization and average cost of supply has been constantly increasing. The earlier reforms in the sector resulted in the unbundling of generation, transmission and distribution businesses.

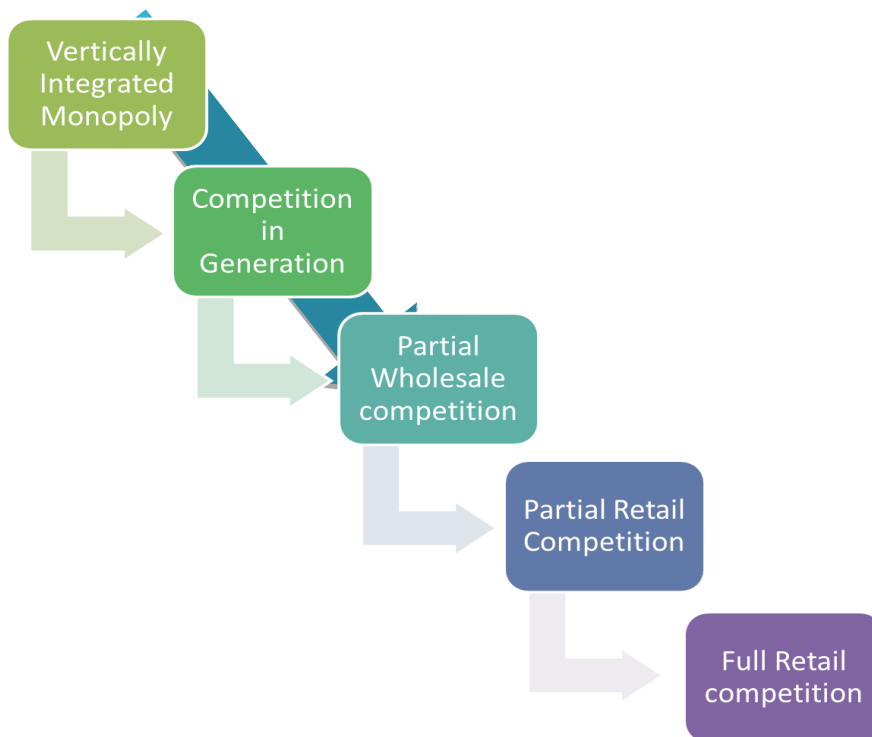
Historically, in most countries, utility industries, including electricity, had been ‘monopoly industries’ in their pre-reform eras. Due to their monopolistic nature, these industries had been subject to regulation in terms of price, entry, and service quality to ensure that abnormal profits and widespread inefficiencies are not prevalent in the system. However, I believe that healthy competition can achieve this objective more successfully.

The Preamble to Electricity Act 2003 talks of promoting competition in electricity sector and the Act in its various provisions gives direction to the Central and State Commission to take necessary steps to promote competition in electricity sector. The **operationalization of parallel distribution license** is one of the ways to promote competition in electricity sector. The Electricity Act 2003 has laid down a roadmap for utilities to transform from vertically integrated monopolies to unbundled autonomous commercial entities. It has encouraged private participation in electricity distribution by providing for multiple distribution licensees and non-discriminatory open access for consumers. Although the business in distribution wires should be optimized to avoid duplication of assets and wasteful expenditure, retail supply can be open to competition.

The transition of vertically integrated monopoly happens in various steps, which is shown in the Figure 1 below:

From the figure.1, if we consider the Indian Power Sector scenario, till now we have reached up to third stage, i.e. partial wholesale competition. As we are also in the transition stage as it was in many countries, Indian power sector will also move towards in the retail competition. As an initiation few states started working on Retail competition model, in Mumbai even though it is multiple license of BSES and Tata Power, it is an initiation to the retail competition.

Figure 1: Stages in Transition of Retail Competition



1.1 Need of competition in Indian Power Market

Over the years, the vertically integrated State owned SEBs has become monolithic organizations and their financial health has deteriorated resulting in huge subsidy burden to the state governments. To make them financially viable and self-sustaining, re-organization and restructuring of these organizations has been mandated in the Act. Although restructuring of the sector has taken place in many of the states, and a few of them having been privatized, the monopolistic nature of supply still persists. The parallel distribution companies with independent distribution network as envisaged in the Act are yet to come up in spite of an enabling legal framework provided in the Act. The consumers continue to buy power from single monopoly utilities without any choice of supplier. As long as there is a single supplier, the consumer is not likely to get quality power at reasonable rates in each area since there is no competition in that area. The introduction of private companies in telecom and air services has seen a sea change in the prices and quality of services in these sectors. On the contrary, though several SERCs have notified the open access regulations besides fixing surcharge,

transmission and wheeling charges, it has hardly helped consumers to come forward to avail open access. There may be compelling reasons such as cross subsidy surcharge, unreasonable transmission charges etc., for the consumers not to go in for open access. In the Indian context, the Electricity Act 2003 allows competition both through retail supply and through parallel distribution licenses. Various issues need to be resolved to make both these options sustainable in reality.

Figure 2: Benefits from Competition in India Power Market



1.2 Wholesale market in Power Market

In many cases, electricity is generated by a power company that ultimately will not deliver it to the end-use customer. A single megawatt, like any other commodity, is frequently bought and re-sold a number of times before finally being consumed. These transactions are considered "sales for re-sale," and make-up the wholesale electricity market.

The wholesale market is open to anyone who, after securing the necessary approvals, can generate power, connect to the grid and find counterparty willing to buy their output. These include competitive suppliers and marketers that are Central and state Generators, Captive Power Plants (CPPs), independent power producers (IPPs), as well as some excess generation sold by traditional vertically integrated utilities. All these market participants compete with each other on the wholesale market.

To be a participant in the wholesale market, however, one does not need to either own any generation or serve any end-use customers. As the case with many other commodities

individual traders (or power marketers) exist who buy power on the open market and re-sell it.

IEX and PXIL are the two power exchanges in India, where it provides online trading platform to the Generators, Buyers, Traders and other parties who participate in the short term electricity transaction. Wholesale market mechanism is concreted well in the Indian power market; the poor financial position of the discoms is not allowing the short term wholesale market to capture the possible share of the power procurement of the utility. Indian wholesale market works through the bilateral transactions and power exchange transactions.

1.3 Separation of Wire and Supply Business

Competition in the retail energy markets has brought considerable benefits to industrial, commercial and domestic customers since it was introduced in various countries. Allowing customers to choose the supplier of their choice keeps the pressure on costs and promotes greater choice of tariffs and services for customers, such as the fixed price and capped price offers now available to domestic customers. In retail choice the consumer is connected to the grid through a separate designated distribution network operator, or he is connected to a different company. There is an obligation to connect to the network or grid, but not an obligation to serve, here the customers are free to choose and avail the electricity from any supplier. The consumer will continue to pay a grid access charge to the network provider. Distribution utility no longer the single buyer for the resale of electricity in their region, there exist multi-buyers in the system. The role of the regulatory institution is the least in the model, and focuses on forming a market structures and Institutions which can assure the latest level of the competition and increased choices for the customer, customer service and protection, service quality etc. There is no regulation for Generation and Distribution tariffs. The market continues to set the price by its own, transmission and distribution business continue as a regulated monopoly business.

The enactment of the Electricity Act has opened the road for the private sector investment in generation, transmission and distribution. Indiscriminate open access to consumers above 1MW of consumption is a salient feature of the EA 2003. CERC and many states have issued the open access regulation to their respected action areas in a phased manner. Transmission tariff for availing open access and the surcharges have also determined by electricity

regulatory commission, for inter-state CERC determines and for the intra-state the SERC determines the tariff.

The Electricity Act 2003 does not allow for the creation of separate legal entities for supply and wire business, but it initiates the competition in the distribution sector, it does make provisions for a parallel licensing regime. The provision in the Act regarding parallel licensing states that:

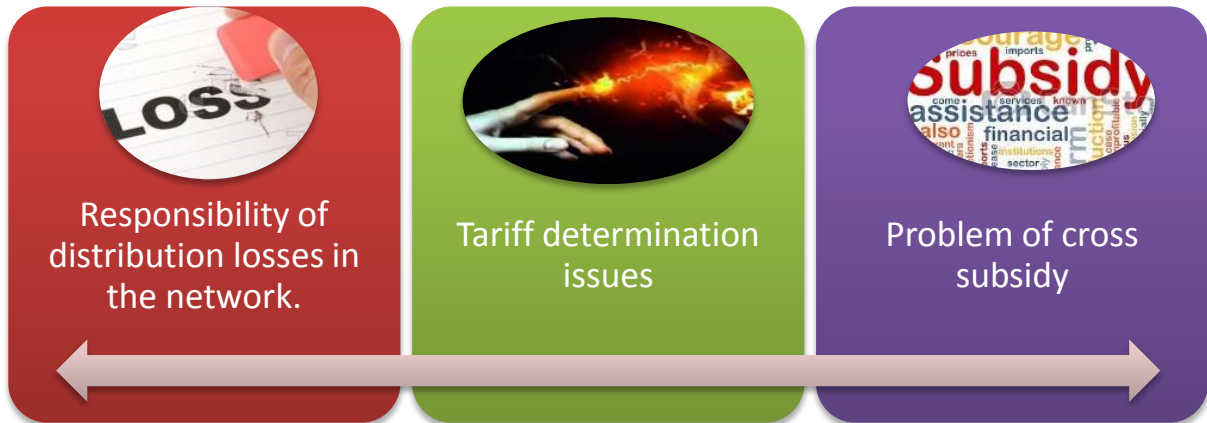
Section 14(2) as,

“provided also that the Appropriate Commission may grant a license to two or more persons for distribution of electricity through their own distribution system within the same area, subject to the conditions that the applicant for grant of license within the same area shall, without prejudice to the other conditions or requirements under this Act, comply with the additional requirements (including the capital adequacy, creditworthiness, or code of conduct) as may be prescribed by the Central Government, and no such applicant who complies with all the requirements for grant of license, shall be refused grant of license on the ground that there already exists a licensee in the same area for the same purpose”

The separation of network and supply business has been raised in many occasion Indian contexts. MERC and KERC initiated for the thrust of the separation business. Though the Electricity Act 2003 gives the provision for the multiple licensees in the same functional area with its own distribution network, it does not envisage separate license for the distribution and supply business. EA 2003 allows the open access to the consumers above 1MW, to determine wheeling charge for the open access consumers, there is a need to segregate wire business cost and the supply related cost. MERC in its tariff orders has directed all the discoms to maintain separate wires and supply business. Now MERC has mandated the separate of rates for network use and power delivery service. The development in the multiple licenses in Mumbai and; PGCIL plan to develop the distribution network for CESU and open it for market has put the building blocks in the separation of content and carrier business.

The major problems arising in the implementation of the separation are;

Figure 3: Problems in the implementation of Separation



International experience from various developed and developing countries like Philippines, UK, Norway, Australia etc. can be taken to breach the obstacles for the implementation.

1.4 Problem Statement

An ultimate objective of the Electricity Act 2003 is to take the measures for conducive development of the electricity sector by promoting competition. Most of the utilities are managed by the state, and the ineffectiveness of the utilities does not bring the actual outcome of the reforms as it meant for, especially in the case of the distribution sector without quality power supply at competitive price and providing choices for suppliers to the consumers, even a decade after the Act came to existence. This make a necessity of review and to look for alternative options to the introduce competition in retail supply, which will evolve to ideal market structure and market driven price determination. The competitive market with many players leads to optimum efficiency and the resulting benefits would be passed on to the end consumers. Imminent challenge is to meet power shortages; consumer choice is relevant from the point of view of quality, reliability and customer service.

1.5 Objectives

The objectives of this report are:

- 
- Study of Parallel Distribution Licensing in Mumbai
 - Review the international experience in retail competition and best practices.
 - Review of competition in power sector in India since enactment of Electricity Act 2003.
 - Finding impact on the Utilities
 - Regulatory framework for facilitating the retail competition in power sector.

2. Literature Review and Research Methodology

2.1 Literature Review

2.1.1 Paper on Unbundling Distribution & Supply, Bain & Company

In this paper, Bain & Company explores this latter trend. Specifically, report says how shareholder value may be maximized when Electric distribution and supply/retail are separated, or, “unbundled”. In particular, the regulatory and physical separation of “owning the net” from “owning the customers” raises interesting challenges – and opportunities – in the management of what amounts to new, more dynamic businesses that now characterize the energy delivery system of the 21st century.

Issue explored in this paper by Bain & Com.:

1. The strategic-business rationale for unbundling distribution and supply/retail.
2. The profitability drivers of both businesses
3. The profitable growth options in both businesses

2.1.2 “Unshackling the market potential of the power sector: India” – Amit Kapur

The case study evaluates the market potential of power sector. It discusses segregation of the wires and supply business at the distribution level. This, however, is desirable as upon separation of supply from distribution, it would be possible to develop a clear regulatory framework where distribution costs and energy costs are unbundled and treated separately. The distribution licensees can then handle risks arising out of bulk consumers shifting to competing producers by suitably pricing energy costs as a 'pass through' subject to regulatory oversight relating to the process of procurement.

2.1.3 “Sustainable competition in electricity distribution - the key to delivering benefits to end customers”- UmeshAgrawal and NimishVora, PwC

Both multiple parallel licensees and retail supply competitors promise to deliver customer benefits; but the key to realizing them is in developing a comprehensive framework, considering all the issues debated above, to mitigate uncertainties involved for all the stakeholders. Such a framework would also enable the emerging participants in the electricity distribution business to prepare and make informed decisions, leading to sustainable competition. Only sustainable competition can deliver benefits to customers in the long-run.

2.1.4 “Discussion Paper on operationalizing Parallel Distribution Licensees in the State of Maharashtra”, MERC report

The report identifies the potential of introducing the retail electricity competition in electricity sector by separation of wire and supply business. Report reviews the practices in few countries which include United Kingdom, New Zealand and Australia. Report concluded that retail competition is enforced in the electricity industry in the studied market is by separating the content and carrier business, the ownership of the wire and many retail suppliers competing each other to supply electricity and increase their market share. Various approaches to the segregation of wire and retail supply is also suggested; separate license for both business, Maintenance of different accounts, Separate management and separate legal entities & ownership.

2.2 Research Methodology

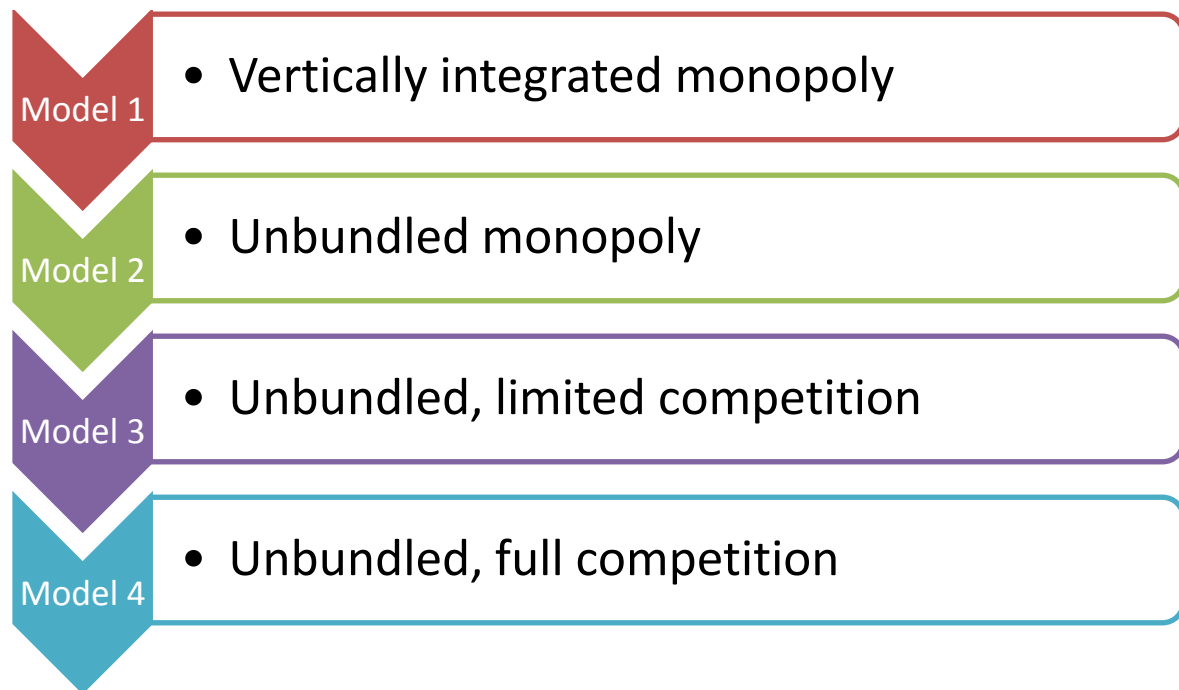
The study is carried out using the secondary data published by the various stakeholders, which includes the regulators, MERC, PWC, CRISIL, CEA, Tata Power, R-Infra, BEST etc.

- The data collection is done through quantitative data collection and the source for the collection of data is internet.
- Data analysis is done through descriptive analysis. Descriptive statistics is the discipline of quantitatively describing the main features of a collection of information.
- Data collection tools are primarily through internet surveys, reports and articles.

3. Generic Electricity Models

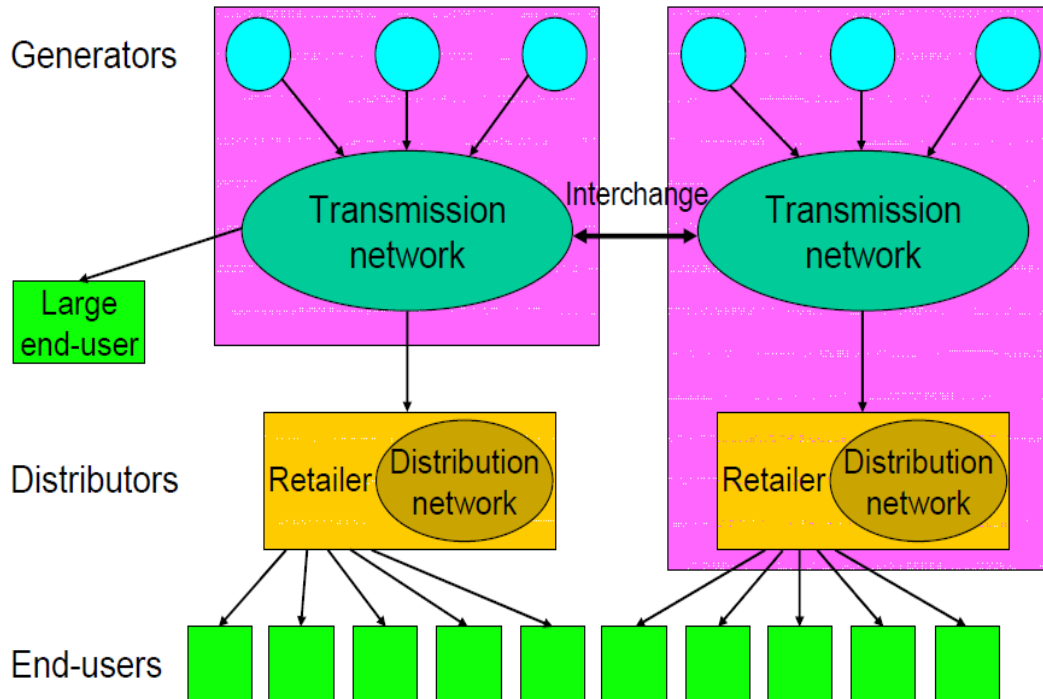
The range of possible structures for an electricity industry comprises a continuum from vertically integrated monopoly utilities on the one hand to unbundled electricity businesses with full competition on the other. The various generic models are:

Figure 4: Generic Electricity Model



3.1 Vertically Integrated Monopoly: Model 1

Figure 5: Vertically Integrated Monopoly



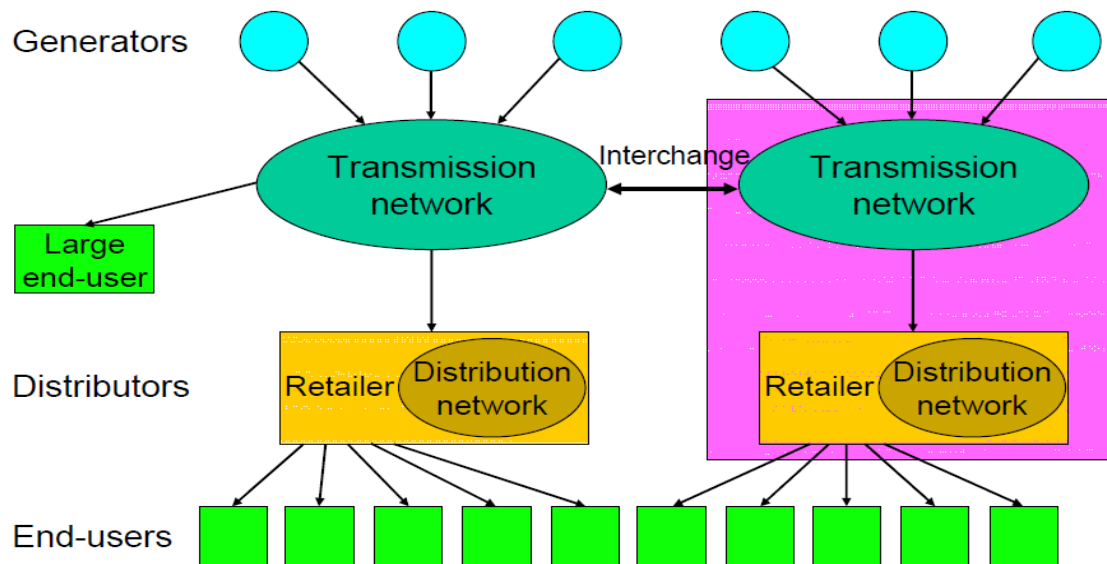
The electricity utility controls and undertakes all business functions: generation, transmission, distribution, wholesale and retail energy supply and services. There is no competition at any level. Utilities have the obligation to serve customers within their own region. Government regulates the utility to prevent monopoly abuse. All customers in the region must buy energy from that utility.

3.2 Unbundled Monopoly: Model 2

Generation is separated from all other functions: several generation companies serve distribution companies and, possibly, major industries. Generators and distributors maintain monopoly status: the generation company has the exclusive right to supply customers within its franchise area, and the distribution companies have a monopoly to serve customers in their respective areas. Transmission is provided by generators, distributors, or a separate entity or entities. Government regulates the monopolies to prevent monopoly abuse. Competition may occur at the generation level, but there is no competition at the retail level. All customers in a

region must buy energy from the retail utility which holds the franchise to their geographical area.

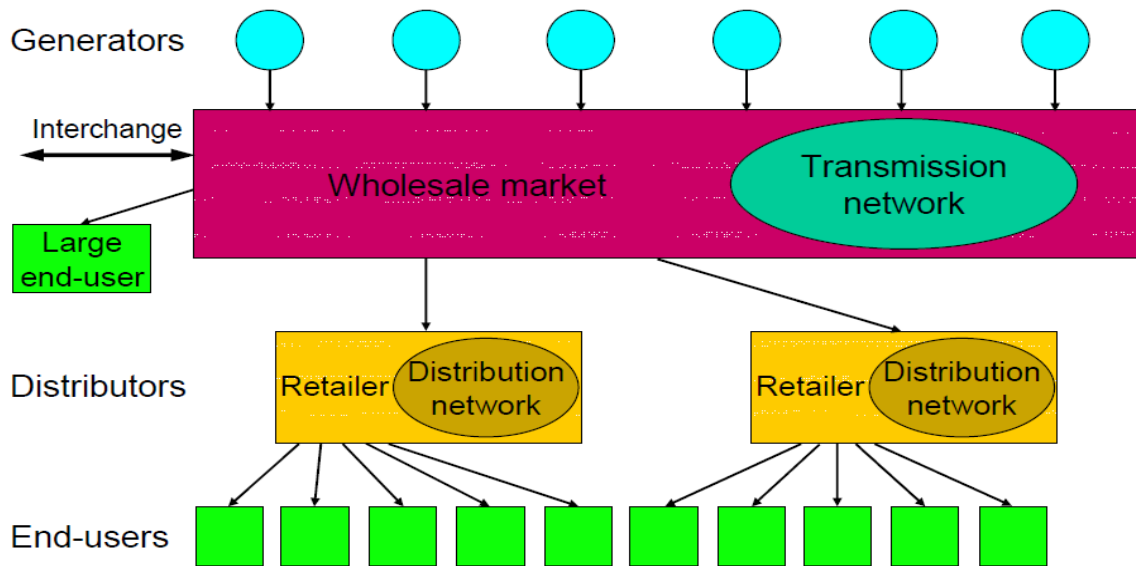
Figure 6: Unbundled Monopoly



3.3 Unbundled limited Competition: Model 3

Generation is separated from natural monopoly functions: many generation companies serve distribution companies and, possibly, major industries through a competitive wholesale market. Generators have open access to the transmission and distribution grid. Transmission is provided by generators, distribution companies, or a separate entity or entities. Government regulates the transmission and distribution system to prevent monopoly abuse. There is competition at the wholesale level: primarily among generation companies and there may be some competition through the use of self-generation by large customers. But with this one exception, there is no competition at the retail level.

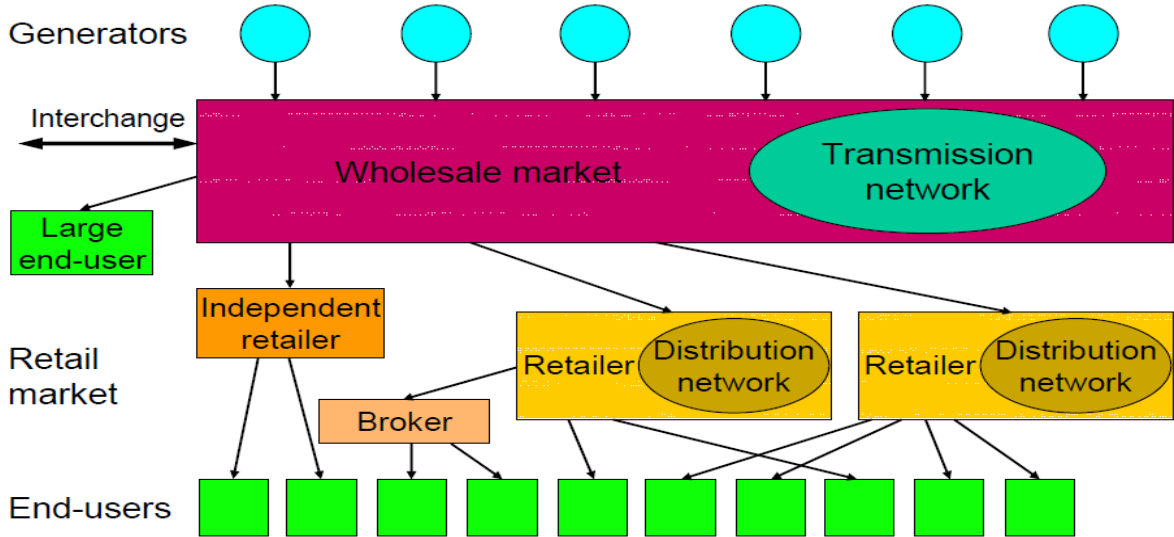
Figure 7: Unbundled Limited Competition



3.4 Unbundled, Full Competition: Model 4

Generation, transmission and distribution functions are separated. There is competition among generators (generators have open access to the transmission and distribution grids). There is complete competition at the wholesale and retail level. At the retail level, two new organisations supply electricity to end-use customers. Independent retailers (who have no interest in the distribution ‘wires’ business) purchase electricity in bulk from the wholesale market and on sell to end-users. Brokers provide a similar service without ever owning the electricity. There is some oversight (regulation) of the wholesale and retail markets to ensure a more efficiently operating market and to prevent abuse of market power. In addition, government regulates (or maintains ownership of) the monopoly transmission and distribution systems.

Figure 8: Unbundled, Full Competition



3.5 Characteristics of Model (Matrix form)

Table 1: Characteristics of Model

Characteristics	Generation Competition	Wholesale Competition	Retail Competition
Model 1: Integrated Monopoly	↓	↓	↓
Model 2: Unbundled Monopoly	↑	↓	↓
Model 3: Unbundled Competition	↑	↑	↓
Model 4: Complete Retail Competition	↑	↑	↑

4. Retail Competition in Detail

4.1 Characteristics of the Retail Competition Model

The basic model is characterized by the fact that it permits all consumers to choose their generator, either directly or through their choice of retailer. Generation is deregulated with free entrance and exit, and regulation does not impose capacity requirements on generators.

Similar to other sectors power retailers buy electricity in the wholesale package and market it to meet consumer demands. Their survival and profits depend on their capability to satisfy consumer preferences, consequently, promoting low prices and the development of new products to increase efficiency.

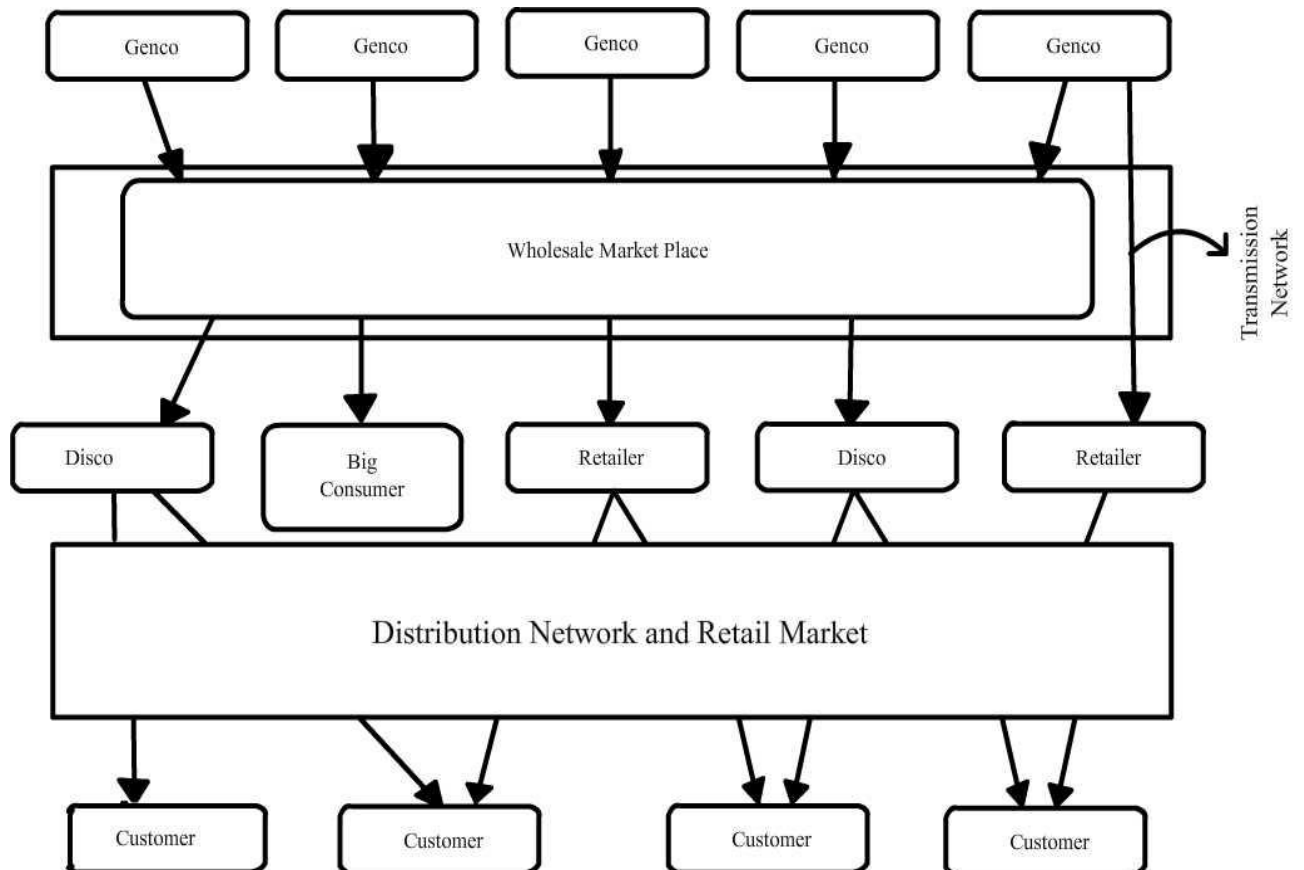
The unbundling of services usually supplied by a vertically integrated utility is an essential element for electricity markets in which end-users wish to tailor their service purchases to their service needs by choosing the sellers that are most able to provide those services.

The retail model needs open access to all wires, both high voltage (transmission) and low voltage (distribution). The retail competition model separates the providing of wires from power service. Customers may purchase their power either directly from the spot market or from one or several competing power retailers. The transportation and distribution companies supply wire services to market agents. Therefore, rules for open access to wires need to be established. In practice however, going directly to the spot market is feasible only for large consumers, able to obtain the information required and to afford the transaction costs involved. Small and medium-size consumers are more likely to either aggregate their demands, if the system allows for this option, or use the services of a retail firm.

Retail companies compete within the service territory formerly served by the local distribution company which remains the exclusive provider of wire services but is not allowed to compete with retail companies in supplying services like power retail and risk management, and there are some cases where the incumbent distribution company can actively participate in the retail business too. In this case strict enforcement of regulation should be there to eliminate the market exploitation by the incumbent supplier.

Both the generation and retail sale functions are deregulated and open to competition. Generating companies sell power to electricity retailers or directly to customers, instead of to a local distributor with a licensed monopoly. Power retailers or marketers would buy power from generators and sometimes resell it to retail customers, bundled with energy management services.

Figure 9: Retail Competition Framework in Power Sector



Licensed companies would provide transportation and distribution services in order to take advantage of economies of scale in these segments. However, these companies must provide open access or common carriage to all consumers, and are regulated to avoid monopolistic behavior.

The retail model requires a spot market to enable multilateral trading. The spot markets make prices that calculate the marginal cost in absolute time, thus spot prices are variable over time. Consumers, retailers or generators may be ready to pay a premium to decrease price volatility and enter into contracts that mitigate risk.

4.2 Open Access

The term Open Access in the Electricity Act, 2003 conjures up a competitive and liberalized retail electricity market. The Act defines it as

“The non-discriminatory provision for the use of transmission lines or distribution system or associated facilities with such lines or system by any licensee or consumer or a person engaged in generation in accordance with the regulations specified by the Appropriate Commission”.

The Act provides for non-discriminatory open access in transmission from the outset, while in case of distribution, it is to be introduced in phases by the State Electricity Regulatory Commissions (SERCs).

Open Access in the Act focuses to promote competition by freeing up possible entries of purchase and sale of power at both the wholesale and retail levels. The Act initiates competition in generation including captives, inter/intra- state trading with open access, and in distribution through parallel licensees with Open Access.

The intention of the Act to welcome the competition can be summarized as follows:

1. Open Access to transmission and distribution facilities can be availed by Generation companies, distribution licensees, trading licensees and end consumers.
2. Captive Generation plants Owners have the right to Open Access for transmitting electricity from their generating plant to their demand location.
3. For retail consumers, the appropriate commissions are empowered to allow Open Access in phases

Open Access through EA 2003 tried to make access to the wire system transact freely, which includes transmission and distribution network by all generators and consumers with a fee. This provision would enable development of a power market with participation from multiple buyers and sellers and the operation of the market will be exposed to competitive forces. Sellers can distribute risk among multiple buyers and their investment decision in generating capacity is likely to be based on prices prevailing in the market. In particular, it has the potential to:

- Provide enough investment from private and public sector
- Ensure the end user to procure power from any part of the country
- Improve the efficiency and quality of the utilities

Interstate transaction through the open access between the generating companies, distribution licensee, traders have enough involvement. But at the state level the implementation of the intrastate open access at the distribution level has not been very encouraging.

4.3 Pricing System for Transmission and Distribution Wire Services

Competitive retail needs open access to distribution and transmission wires. This in turn requires that prices must be set for both these services. They must also provide appropriate returns to the owners of the wires.

Independent companies should provide distribution and transmission services. This solves the problem of discrimination among different consumers and discourages cross-subsidies, which is a major concern of pure retail companies.

There would be two types of fees, the access fee and the regular fee. The access fee covers the cost of having and accessing the network of wires available, or the right to use the existing transmission and distribution network. The regular fee reflects the marginal cost of transferring electricity through the existing network of wires.

4.4 Distribution and Retailing Separation

Power retail and power distribution is two separate functions. Power retail is the business of buying power from generators or in the spot market and reselling it to final customers. Distribution is the service of carrying electricity from the transmission and distribution network to the consumer.

Distribution wires must be operated separately from retail because selling wire services (services that allows access to distribution network) will still be a monopolized and a regulated business, whereas retail is open to competition because a distribution utility providing both services may cross-subsidies and discriminate between consumers buying only wires and consumers buying both power and wires.

Allowing distribution companies in retailing may reduce market competition and increase market power of distribution companies as they may subsidize their retail consumers by levying a wire services charge higher than the cost to their captive consumers, or in cases of connection damage, the distribution company will have greater incentives to fix those servicing its own customers first. This sort of situations should be handled by regulators in order to prevent a failure of competition within their distribution territory.

Nevertheless, most of the companies being restructured own the wires and sell the electricity at the retail level. This may be the reason that only a few customers seek retailers other than their distribution companies.

4.5 Benefits of retail competition model

Competition among retailers put an end to the captivity of consumers and the old idea of regulated monopoly, unavailability of choice which compelled consumers to abide by monopoly conditions, both in terms of high prices and low quality.

Retailers would often arbitrage the prices if they see that cost are not effectively reflected in the electricity tariffs, thus improving price efficiency. Arbitrage is taking advantage of the differences in prices of different places and purchasing from lower price area and selling to higher price area obtaining a marginal profit till the point no further profit can be made. The result of arbitrage is that now prices would be totally cost reflective.

Retail Companies would increase the number of different products and services which would increase consumer welfare. Unlike regulated distribution monopolies, these unregulated retail companies can profit from selling power or other products and services to consumers. Retail companies due to competition would differentiate their energy services. They may specialize, like in renewable energy to be sold to environmentally conscious or green consumers ready to pay higher prices in order to protect the environment.

Competition would encourage all, retailers, distributors and generators to develop technologies to increase efficiency to lower costs and increase reliability of supply. Specialization resulting from competition would further lower costs and raise consumer welfare.

As seen in other sectors like agriculture and banking, parties involved, especially the large consumers and power generating companies would be ready to pay a premium to hedge the risks and variability of price in the spot market and would engage in futures contracts to mitigate price volatility. Competition would lead to risk being borne by party who is able to manage it the best. Since the major source of risks are the fuel price fluctuations and changes in consumption patterns many types of derivatives contracts would be offered by companies resulting in effective risk management.

5. International Experience in Introduction of Retail Competition

Reforms in electricity distribution have taken place in several countries over the years; United Kingdom, Chile, Argentina, and Australia were among the earliest to undertake the same and have therefore become models for reform execution elsewhere. The reforms in the electricity industry have typically included industry restructuring and privatization followed by regulatory changes for developing a competitive market. These countries offer a good case study for understanding the introduction of retail competition in electricity distribution.

Historically, in most countries, utility industries including electricity have been “monopoly industries” in their pre-reform eras. Due to their monopoly nature, these industries have been subject to regulation in terms of price, entry and service quality to ensure that excess profits and inefficiencies are not allowed in the system. On the other hand, competition achieves the very same objectives of minimization of excess profits and maximization of efficiency by permitting consumers a choice. Additionally, competitive pressures can also spur innovation in products/services and production/service delivery methods and encourage radical thinking for cost optimisation. Further, costs and imperfections related to regulation are avoided in a competitive scenario.

International experience suggests that typically competition has first been introduced in the upstream segments of the industry, which in the case of electricity is generation. Typically, there were few state owned generation companies in the pre-reform era which were first privatized. In such cases, the generation entities were broken down into multiple entities and then privatized, to promote competition. In the case of vertically integrated monopolies, unbundling of the monopolies into separate generation, transmission and distribution entities was carried out before privatization. The distribution and the transmission continued to operate as regulated monopolies. Regulators generally resorted to the creation of an electricity pool for the development of a wholesale market as the next step. Although the distribution business had been retained as a monopoly to avoid duplication of assets and wasteful expenditure, certain segments of the distribution business were seen to have scope for introducing competition. The distribution business can be broadly segregated into two functions:

1. **Supply business** – Procurement of wholesale electricity and sale of electricity to retail consumers and providing consumer-related services including metering, billing, collection, and complaint handling

2. **Network business** – Development, operation and maintenance of the distribution network

Sector reform efforts at the retail end have therefore been largely directed at the separation of the wires business and the supply business, and the introduction of competition in the retail segment. Thus generation and retail supply have evolved as potentially competitive segments and transmission and distribution (wires business) are viewed as natural monopolies. The retail suppliers typically purchase electricity from the wholesale market, and supply to retail consumers. The retail suppliers pay the network operator for the use of wires to reach the consumer. Due to inherent conflicts with the monopolistic nature of the distribution business, regulators in several countries have allowed the introduction of competition in the retail market only after the segregation of the distribution business into the supply and wires businesses.

5.1 Review of International Experience

Experiences of some of the countries, which are considered to be developed markets in terms of retail competition in electricity, are discussed in the sections below.

5.1.1 *United Kingdom*

The United Kingdom (“UK”) electricity industry was one of the first to experience reforms, which became a model for the remaining countries. In the pre-reform era, the Central Electricity Generating Board was responsible for the generation and transmission of electricity, while 12 area electricity boards (AEB) were responsible for distribution and supply to consumers. On 31 March 1990, as part of the privatisation of the electricity system in England and Wales, the area electricity boards were changed into independent regional electricity companies (RECs) and the CEGB was split into four companies -- three generation companies and the National Grid Company, operator of the National Grid. The National Grid Company was placed under the ownership of the RECs. On 11th December 1990, the RECs were privatised. In 2000, as part of further restructuring of the market under the Utilities Act 2000, the public electricity suppliers were required to have separate licenses for their supply business and distribution networks, which were renamed as distribution network operators (DNOs). Presently, there are five types of electricity licences:

- a) **Generation**- Allows the licensee to generate electricity for the purpose of giving supply to any premise or enabling a supply to be given.
- b) **Transmission**- Allows the licensee to participate in the transmission of electricity for the purpose of enabling a supply to be given.
- c) **Inter-connector**- Allows the licensee to participate in the operation of an electricity interconnector. Participating in the operation as an electricity inter-connector is defined as: co-ordinating and directing the flow of electricity into or through an electricity inter-connector, or making such an interconnector available for use of conveyance of electricity.
- d) **Distribution**- Allows the licensee to distribute electricity for the purpose of enabling a supply to be given. Electricity is distributed from the National Grid Network through a low voltage network of wires to customers.
- e) **Supply**- Allows the licensee to supply electricity to different premises.

The regulator Office of Gas and Electricity Markets (OFGEM) has a market monitoring role - it publishes periodic reports on developments in the domestic retail market and conducts investigations and consultations on the performance of the domestic and the non-domestic markets, when necessary. Most of UK's electricity is generated by gas, coal and nuclear stations. Thirty large (>1GW) power stations meet the majority of the electricity demand. The generation industry is a competitive market. There are four transmission systems in the UK - one in England and Wales, two in Scotland, and one in Northern Ireland. Each is separately operated and owned. The largest, in terms of line length and share of total transmission, is the National Grid Company (NGC) system, covering England and Wales. NGC also operates electricity 'interconnectors' – overhead lines connecting the transmission networks in England and Wales to Scotland, and an undersea link that connects France and England. Transmission operators also have a role in balancing generation and demand at all times, to ensure the security of the network.

The retail electricity market in UK was opened up in three phases for large users (> 1 MW) in 1990, for medium users (> 100 KW) in 1994, and for residential consumers in 1999. Full competition was introduced in Great Britain from 1999. Extant regulation prohibits the

distribution network operators from holding supply licenses. Allowing customers to choose the supplier of their choice has kept up the pressure on costs and promotes greater choice of tariffs and services for customers, such as the fixed price and capped price offers now available to domestic customers. Competition in metering services also helps suppliers to deliver more innovative products to customers. This competitive market in retail supply has developed well.

Post-reforms electricity market in the UK

Electricity distribution networks carry electricity from the transmission systems and generators that are connected to the distribution networks to industrial, commercial and domestic users. There are 14 licensed distribution network operators (DNOs) each responsible for a distribution services area. The 14 DNOs are owned by six different groups. There are also four independent network operators who own and run smaller networks embedded in the DNO networks. There are various types of Supply licenses in UK at present, e.g. those for supply to Domestic premises, Non Domestic premises, “Green Deal arrangements”, etc. and supply license applicants can even apply for specific premises/areas in which they are willing to supply electricity. Domestic, and most commercial, consumers buy electricity from suppliers who pay the DNOs for transporting their customers' electricity along their networks. Suppliers pass on these costs to consumers. Distribution costs account for about 20% of electricity bills. Various charges related to DNO operations are as follows:

Use of system charges: To pay for network reinforcement, maintenance and renewal, paid by generators and suppliers, broadly in proportion to their use of the network. Charges are highest for generators in remote regions, far from demand.

Connection charges: To cover costs of infrastructure required for new connections, paid by generators and customers wishing to connect.

Balancing charges: To meet costs of matching supply with demand, and providing reserve generation, paid by large generators and suppliers.

The DNOs are regulated through five-year price control periods, which include curbs on expenditure as well as incentives to be efficient and to innovate technically. The price controls set the maximum amount of revenue which energy network owners can take through charges they levy on users of their networks to cover their costs and earn them a return in line with agreed expectations. Ultimately, charges are passed to electricity consumers.

Transmission and distribution costs make up around 4% and 17% of the average domestic bill, respectively.

Learnings from the UK experience

The UK experience is highly encouraging for a nation considering the path of segregating electricity wire and retail supply businesses, and introducing retail competition. The phased model of rolling out retail competition is necessary in order to allow the market, so far insular to competition under the control of a regulator, to evolve to competition-based price setting. An important feature of retail sector reforms in the UK was formation of a trading pool which was monitored, assessed and routinely modified through several review mechanisms to ensure proper functioning of trading arrangements in the country (through NETA and BETTA). The wholesale market evolved into a highly developed mechanism with financial tools and instruments being devised for trading of power. This, coupled with the energy surplus scenario in the UK, was significant in assisting retail side reforms.

A noteworthy point was that the Utilities Act 2000 mandated ownership separation of distribution (wire) and retail supply businesses. With this legislation, a distribution network operator could no longer sell electricity as a retail supplier. This stemmed from the rationale that allowing distribution companies to remain in retail sale may adversely affect market competition because these distribution companies may discriminate between their own consumers and those taking supply from competitors when it came to network-related service, or they may subsidize their own retail customers by using the wire tariff to cross-subsidise them. Therefore, the 2000 Act separated the competitive activity i.e. retail supply from the inherently monopolistic distribution business, thereby eliminating conflict of interest.

Another area of learning from the UK is the way consumer interest was safeguarded and their electricity supply made secure by way of the universal service obligation wherein Last Resort Supply direction may be given to the incumbent distribution licensee under certain conditions. Moreover, the distribution network operator has the “Duty to Connect” i.e. make available the distribution network on request, whereas the incumbent licensee as well as competitive retailer(s) both have the “Duty to Supply” i.e. to meet all reasonable demands for supply of electricity made by customers within their supply areas on reasonable/approved terms. It must be kept in mind that the reduction in retail electricity prices witnessed in the

UK happened due to various reasons that complemented the benefits from retail competition, viz. wholesale market reforms and discovery of alternative source of energy (gas). Moreover, as observed in the post-reform UK, the role of the regulator remains important in monitoring the market behavior of competitive rivals and ensuring that the market remains free and fair, which makes it possible for consumers to actually benefit from the potential gains from a competitive market.

5.1.2 Australia

Until the mid-1990s, in some Australian states (Victoria, South Australia and Tasmania), the four functions of generation, transmission, distribution and electricity retailing (also called ‘electricity supply’ in some countries) were carried out within a single, vertically-integrated, monopoly business. In other states (New South Wales and Queensland), generation and transmission were contained in a single monopoly business, while distribution and retailing were carried out by a number of businesses, each with a monopoly franchise covering a specified geographical area within the state. The major objective of the electricity industry restructuring in Australia has been to unbundle the four functions into separate businesses:

- Several competing generation businesses have been established in each state.
- A single monopoly transmission business has been established in each state.
- Geographical monopoly franchisees for distribution have been retained in states that already had them and have been created in the other states. In some states, the number of existing franchisees has been reduced.
- A two-tier system has been established for electricity distribution and supply in each state.

‘First tier’ retailers: These are attached to a distribution business with a monopoly geographical franchise in that state. First-tier retailers can sell electricity to customers throughout the state, whether or not the customers are located within the accompanying distribution franchise. The retail business is “ring-fenced” from the distribution business (i.e., established as a separate accounting entity within one holding company). The first-tier retailer is akin to the widely known concept of “Utility of last resort.”

‘Second-tier’ retailers: These are stand-alone businesses not attached to a distribution business in the relevant state. Second-tier retailers can also sell electricity to customers

throughout the state. A second tier retailer in one state may be a first-tier retailer in another state.

The major Australian wholesale electricity market, the National Electricity Market (NEM), comprises the sale of bulk electricity by generators to electricity retailers and large end-use customers in southern and eastern Australia. The NEM operates in the states of New South Wales, Victoria, Queensland, South Australia and Tasmania and in the Australian Capital Territory. The retail electricity market comprises the sale of electricity by retailers to end-use customers. Within the area covered by the NEM, the retail market is partly competitive and partly operates on a franchise basis.

In the competitive retail market, electricity retailers compete to supply to the vast majority of large customers who choose not to purchase directly from the wholesale market, and to smaller customers who opt out of purchasing electricity from their first-tier retailer. In most jurisdictions in which the NEM operates, retailers can sell electricity to all end-use customers down to the household level, i.e., all customers are contestable. Where this is the case, customers may continue purchasing electricity from their local first-tier retailer; the tariffs they pay are controlled by the electricity industry regulator. Alternatively, customers can choose to purchase electricity under a competitive retail contract from a first or second-tier retailer in their state. There are no controls on prices under such competitive retail contracts. Under this structure, for the retail electricity market, retailers actually shield retail customers from the price volatility in the NEM wholesale spot market. In effect, retailers provide price risk insurance for retail customers with the retail price being paid by the customer, including an insurance premium component.

Post-reforms electricity market in Victoria

In 2004, right after full retail competition was introduced; the Essential Services Commission of Victoria (ESC) undertook a review of the effectiveness and performance of energy retail competition for small customers. The ESC found that the market is currently effective in those sub-markets, where sufficient margin exists or has emerged to make market contracts attractive to those customers and the customers profitable to serve for retailers. The ESC estimated that those sub-markets account for about 40% of small customers.

At present, there are five electricity networks (called distributors) operating across Victoria. These distributors own and maintain the electricity networks in different geographical areas.

The retail market being fully deregulated, power companies are able to set their own retail prices. As at November 2012, there were fourteen main energy provider brands retailing electricity to households in Victoria.

Learnings from the Victoria experience

Victoria has deregulated its retail supply market with reasonable success in terms of policy outcomes. The phasing of introducing competition was extremely circumspect in Victoria, with the first phase targeting only consumers with load above 5 MW, with progressively bigger (in terms of number of consumers affected) segments being deregulated over time. Significantly, the Maximum Uniform Tariff (MUT) regime implemented by Victoria was an effective step towards guaranteeing real reductions in electricity prices for the end consumer. However, policymakers must be circumspect about implementing such a step as the drawback of a fixed retail tariff regime can be felt in case prices rise unexpectedly in the generation/wholesale market without any corresponding adjustment in the specified retail tariffs/MUT, since retail companies would have to take a severe hit in such scenarios.

5.1.3 Argentina

In 1989, Argentina had 3 state owned utilities offering generation, transmission and distribution services. Some provincial utilities (distributors) and electricity cooperatives also existed. Electricity spot market prices were high (around \$45/MWh in 1992) and transmission & distribution losses were to the tune of 25%. As part of reforms, Argentina first restructured the federal electricity companies and then privatized them. In 1990, the Government was removed from direct operation in electricity industry. In 1992, an Act was passed to restructure and privatize industry.

The Act divided the electricity industry into generation, transmission, and distribution. The restructuring began in 1992 with the creation of a national regulatory body, ENRE, for the soon-to-be privatized Argentine electricity industry. Also, during 1992, a national electricity wholesale market was organized and the privatization of companies began, within the new rules established by the various treaties and privatization laws. The first three federally-owned electricity companies (Segba, Ayee and Hidronor) that were privatized produced a total of about 80 percent of the nation's supply of electricity. Before the companies were

privatized, they were restructured by separating them vertically, and, to a lesser extent, horizontally.

First, power generation was separated from transmission and distribution. Then, the constituent power generation facilities were separated from one another resulting in separate companies. Hence, Generation became competitive, while Transmission and Distribution functions became regulated private monopolies. The most crucial part of reforms was the creation of an independent market regulator (ENRE), along with a wholesale electronic market (MEM) and its independent operator (CMMESA). ENRE was charged with enforcing laws, regulations and concession terms, setting distribution service standards, resolving disputes between electricity companies, overseeing CMMESA, and setting maximum electricity prices.

The MEM is a power pool aggregating electricity supply from all generation sources, comprising:

- A term market consisting of agreements for which quantities, prices and conditions are negotiated directly between buyers and sellers;
- A spot market with hourly prices taking into consideration economic production costs; and
- A balancing market.

Post-reform electricity market in Argentina

Between 1992 and 1995, 25 state operated companies were privatized. The generation market was made highly competitive and by 2000, there were 43 companies owning 96 plants. Wholesale spot prices fell to ~\$27/MWh by 2000 and T&D losses were down to an impressive 7% in 1999. Supply hours to consumers have also improved as result of the reform process.

The following electricity industry structure is currently in place in Argentina:

- Power generation companies are not allowed to own majority shares in Argentina's three transmission companies.

- The transmission and distribution companies have to provide open access to their systems for the power generators on a regulated basis.
- Distribution companies are organized as regional monopolies and permitted to buy electricity from the MEM or through contracts with power generation companies.
- The energy market was liberalized for customers with demands greater than 5 MW, and this has been successively reduced to 30 kW. These customers are free to contract directly with generators and can participate directly in the generation market.
- Tariff for Regulated customers (below 30 kW) is calculated by a formula that takes into account the wholesale prices, seasonality, capacity and local charges, if any.

Learnings from the Argentina experience

It is worth noting that Argentina went for major reforms in the wholesale and spot markets for electricity, along with a balancing market, before setting upon the course of retail competition. Vertical and horizontal separation ensured real competition in the generation sector. Argentina has stopped short of deregulating the retail market for consumers with load under 30 kW. Tariff for these consumers, as mentioned above, is calculated by a formula pegged to wholesale prices, among other factors. An emerging nation such as India that is considering the path of retail competition may keep this option in mind since this would help in controlling the pace of deregulation in the retail electricity sector and small users, including households, may be opened up to competition only after properly reviewing the performance of retail competition in context of other consumer categories.

5.1.4 Philippines

The electricity regulator began the process of retail competition by clearly announcing that competition would be ushered into the market after the pre-conditions set in the EPIRA, 2001 are met and when the regulator declares it. When this happens, electricity consumers can choose their own Retail Electricity Supplier, with commercial and industrial customers being the first ones opened up to competition. The regulator has mandated that at the start of retail competition, the distribution utility that has captive customers is the Supplier of Last Resort and this supplier shall serve customers who do not choose a retail electricity supplier (RES) as well as customers whose RES stops providing service without sufficient notice to the customer.

Official reports envisage that the phasing of retail competition would be thus: In the beginning, competition shall be open to consumers with load 1 MW & above; after 2 years, it shall be made available to consumers with load 750 kW & above; and there would be a gradual decrease in the load limit of the contestable market such that within 7 years, retail competition reaches household levels. A Wholesale Electricity Spot Market (WESM) has been created with a view to promoting competition in the electricity market in Philippines. The market provides the mechanism for identifying and setting real-time prices taking into consideration actual variations from the quantities transacted under contracts between sellers and purchasers of electricity.

Reduction in cross subsidy

The Electricity Power Industry Reform Act (EPIRA) of 2001 mandates that all types of cross subsidies be phased out within a specified period. Pending the complete removal of cross subsidies, each cross subsidy rate level is to be shown as a separate item in customer billing statements.

The ERC was mandated to establish a **Universal Charge** (UC) to be recovered from all electricity end-users to account for – among other factors – all forms of cross subsidies that remain during the phase out period (other factors being payment for stranded debts, missionary electrification, equalization of taxes, and an environmental charge). The UC was envisioned as a non-by passable charge collected from all end-users (except threshold and lifeline consumers) every month based on the approval of the ERC. Within a period not exceeding 3 years from the establishment of a Universal Charge (UC), it was mandated that cross subsidies shall be entirely phased out. A provision of Lifeline Rate was made for the marginalized end users during the phase out of cross subsidy for a period of 10 years.

Learnings from the Philippines experience

Levy of Universal Charge on all electricity users in order to phase out cross subsidies remaining in the system is a concept that can be considered by a country like India where tremendous cross subsidies still prevail in retail tariffs set by regulators. It is also worth noting that Philippines also went for substantial wholesale market reforms before setting upon the course of retail competition.

5.1.5 New Zealand

The five major generation companies produce more than 90 percent of New Zealand's electricity. New sources of generation can be developed in New Zealand without securing any specific approval from the Commission. The main regulatory requirements are that a new plant conforms to the relevant technical codes and has the necessary resource consents. Generators that are bigger than 30 MW or which are grid-connected compete in the electricity spot market by submitting 'offers' to the System Operator for the right to generate electricity to satisfy demand, subject to transmission capacity. In addition to retailers, a small number of customers, typically large industrial users, also buy electricity directly from the spot market. These parties will typically also enter into financial contracts (often called 'hedges'), which smooth out some or all of the volatility in spot prices. In addition to managing the existing transmission system, Transpower plans and builds new grid investments. These grid investments are first reviewed and approved by the Electricity Commission. Transpower is responsible for all transmission development processes; for example, resource consents, access rights and construction. The national grid transports electricity from over 50 power stations, and connects with distribution networks or major industrial users at around 200 grid exit points (GXPs) around New Zealand.

The Electricity Commission is responsible for overseeing New Zealand's wholesale and retail electricity markets, operating the electricity system, promoting the efficient use of electricity and regulating some aspects of electricity transmission. In addition to its role as competition 'watchdog', Commission administers the price control regime for transmission and distribution businesses, and enforces the legislation that requires a level of ownership separation between network activities and generation/retailing. The distribution business has been segregated into two segments, i.e., the lines business and the supply business. The Electricity Act 1992 introduced contestability in the retail segment by removing the exclusive retailing rights and the obligation to supply. At that time, the separation of the lines business and the supply business within the distribution business had not been carried out. As a result, the network operators who owned the lines business continued to operate in the retail supply segment. Several measures, including public disclosure of information relating to line charge, and financial separation of the competitive activities (generation and retailing) from the monopolistic activities (lines business) to promote competition, were implemented. However, there was a concern that the electricity companies, being vertically integrated natural monopolies, would use their market power in distribution to exclude competition at the retail

level. To address this concern, the Electricity Industry Reform Act was introduced to reform the electricity industry to better ensure that costs and prices in the electricity industry were subject to sustained downward pressure and the benefits of efficient electricity pricing flowed through to all classes of consumers by:

- Effectively separating electricity distribution from generation and retail
- Promoting effective competition in electricity generation and retail.

Common ownership of electricity distribution businesses and of either an electricity retailing or electricity generation businesses (other than minor cross-ownerships) is prohibited. Presently, around 29 line companies own the local distribution networks throughout New Zealand and operate as monopolies. The line companies are connected to the national grid at the GXP. Generally, the line companies sell their distribution or line services to retailers who manage the electricity supply agreements with the end consumers.

The network operators are subject to a targeted price control regime which was introduced in 2004. Under the regime, the line businesses are only potentially subject to control if they cross either of the two thresholds of performance. The regime is referred to as “targeted control” because only those businesses that cross the thresholds, trigger the Commission to identify line businesses whose performance may warrant further examination, and if necessary, control of prices, revenues and/or quality. The two thresholds adopted by the Commission for all electricity line businesses (with the exception of Transpower), are: compliance with a specified price path based on the CPI minus X price methodology, and compliance with specified reliability and consumer engagement criteria. The operation of the electricity retail market is overseen by the Commission in order to promote strong retail competition and fairness to consumers. Its role includes providing arrangements for the protection of consumers, as well as administering retail market rules such as metering arrangements, customer switching and reconciliation – the process by which the quantity of electricity purchased by each retailer is calculated. The key features are that customers can switch between retailers, and any party can be an electricity retailer provided they meet the minimum requirements.

While the extent of retail competition varies across the country, customers have a choice of retailers. The retail tariffs are not subject to price control. In some parts of New Zealand, there are five or more competing retailers. All of the main generation companies in New Zealand are also electricity retailers. In addition, there are a number of smaller independent

electricity retail companies. Furthermore, the switching process has become easier over time, and can now be executed over the phone with the new electricity retailer. Free web-based tools are also available to help residential users to shop around.

5.2 Some Conclusions from the International Experience

- Post introduction of wholesale competition, supply of electricity is often separated from the operation and ownership of the distribution wires and a number of suppliers or retailers compete to sell electricity to customers, or rather customers choose their suppliers, i.e., retail competition is allowed.
- Choice of supply for large customers is often introduced at the same stage as wholesale competition, and then extended to smaller consumers at a later stage. Suppliers buy their electricity from the wholesale market and then pay the transmission and distribution companies a regulated price to transport their electricity to customers. Customers may also elect to purchase their electricity directly from generators. The UK, New Zealand, Australia and many other countries have moved to retail competition -- first allowing large customers choice and then eventually extending competition to all electricity customers.
- In full retail competition, the regulator generally regulates only the natural monopoly (wires) part of distribution and competitive retail, or selling services are deregulated. However, as a measure to protect consumer interest, in countries such as Australia, there is a default service provider, whose tariff serves as a ceiling. The consumer receives regulated “delivery” services from the local utility and can shop for a supplier of competitive services. Customers who do not or cannot find a competitive supplier are offered “default service” (typically) by their local utility.

6. Indian Experience with Retail Parallel Licensing

6.1 Saraikela- Khasarwan (Jharkhand)

As mentioned above The Electricity Act, 2003 opened up power distribution to the private sector and permitted more than one power distribution in a revenue region, vide proviso 6 of section 14 of the said act. In line with the above provision and in reference to the Commission's communication to JUSCO (Jharkhand Utilities and Services Company Limited(JUSCO) is a wholly owned subsidiary of Tata Steel Limited) with regard to filing a petition for distribution license for one or more revenue districts (letter no. JSERC/06/2004-05/64), JUSCO applied for a Second Distribution License (Jharkhand State Electricity Board being the first distribution licensee) vide application no. PBD/176/69/06 dated May 5, 2006 for the revenue district of Saraikela-Kharsawan. The Saraikela-Kharsawan district is contiguous to JUSCO's service area of Jamshedpur. The Commission granted a Power Distribution License (No. 3 of 2006-07) to JUSCO on December 1, 2006 for the aforementioned revenue district. Consequently, JUSCO began its power distribution services in revenue district of Saraikela-Kharsawan in September 2007 as a second distribution licensee. This way the aforesaid region became the first district to experiment with granting of parallel licenses.

6.2 Damodar Valley Corporation and SEB's of Jharkhand and West Bengal

Damodar Valley Corporation (DVC) was created as a multi-purpose integrated development authority under DVC Act, 1948. Its area now falls in parts of West Bengal and Jharkhand. DVC is a partnership between the Central Government and the two State Governments. It has been deemed to be a licensee under Electricity Act and the provisions of DVC Act continue to apply to it to the extent that these are not inconsistent with the Electricity Act. Under the DVC Act, it had monopoly of serving HT consumers of 30 kV level and above, and could also serve smaller consumers with the permission of State Government. DVC also has powers to set tariff for the sale of electricity. It has been supplying electricity in bulk to the respective SEB's as well, with whom it shared geographical area of operations. After the enactment of the Electricity Act, DVC's generation and transmission activities have come within the jurisdiction of the CERC while its distribution activity is subject to regulation by the two state regulators. According to the clarification issued by the Ministry of Power on 27th

November 2007 (after consulting the Law Ministry), the SEB's of West Bengal (now unbundled), and Jharkhand have an obligation as well as the right to supply to any consumer, whether HT or otherwise. DVC has the obligation and duty to supply to consumers at 30 kV and above level whereas it can, if it chooses, supply to consumers at lower voltage levels with the consent of the respective State Government. Therefore as per this arrangement there exists a scenario whereby two distribution licensees, namely DVC and Jharkhand/West Bengal SEB's, are distributing electricity to consumers and providing choice.

6.3 Noida Power Company Limited and PVVNL

Noida Power Company Limited (NPCL), a JV with Greater Noida Industrial Development Authority, was given a distribution license for 30 years in 1993 in Greater Noida, a new industrial area. As the area developed and attracted a number of industrial units, Paschimanchal Vidyut Vitran Nigam Limited (PVVNL), a wholly owned subsidiary of the UP Power Corporation Limited, also got attracted to this area and applied for a second distribution license in the Greater Noida area in December 2009. PVVNL was a successor entity of Uttar Pradesh State Electricity Board (UPSEB) and was deemed as a distribution licensee in Western UP. It had a negative net worth because of accumulated financial losses over the years. The license application was opposed by NPC, mainly on two grounds. These were non-fulfilment of financial capability criteria by PVVNL, as required under the statutory rules, and that the area applied was not a municipal council or a revenue district. UP's regulator overruled both the objections. Regarding the objection on an area of application, though the regulator argued that the rule or the NEP cannot put a restriction on the area of second licensee, as there was no such provision in the Act, it finally took a correct view that since the area applied was whole of the area of an existing licensee, the restriction of minimum area would not come into play. It would be relevant, however, to note that in a case that was quoted by NPC, the Appellate Tribunal had ruled that even a government company was required to fulfil the statutory requirements of rules, including the minimum limit on area. On the second objection of PVVNL's net worth being negative, the regulator relied upon a communication from the state government that it would provide necessary finances to PVVNL for negative expansion. PVVNL was found to be financially capable according to the rules as it was permissible to rely upon the strength of the promoter of the applicant, and the State Government was the ultimate promoter of PVVNL being the wholly

owned subsidiary of UPPCL, which itself was fully owned by the State Government. PVVNL ultimately got a second license.

6.4 Special Economic Zone of Gujarat

Distribution and supply of electricity within Special Economic Zones (SEZ) may require a special regulatory approach in view of the fact that these are Greenfield areas and a newly created SEZ is likely to have no existing distribution network. Therefore, while the SEZ would fall within the geographical area of supply of a distribution licensee, the SEZ area would not have an “incumbent distribution license” per se. Such issues were discussed and studied at length by the Gujarat Electricity Regulatory Commission (GERC) at the time of granting licenses for distribution of electricity within various Special Economic Zones in the States.

Gujarat

The Ministry of Commerce, Government of India had issued guidelines pertaining to SEZ Developers for setting up power generation facilities and its distribution within the SEZ area. However, in one of the first applications of its kind, the SEZ developer Essar SEZ Hazira Ltd. applied to the GERC in 2008 for a second distribution license in addition to the license held by Dakshin Gujarat Vij Company Ltd. (DGVCL) in whose geographical area of supply the Essar SEZ area was located. Essar SEZ petitioned to be allowed to distribute electricity in the SEZ without generating any power, after having entered a memorandum of understanding with Bhandar Power Limited for supply of power from their plant at Hazira. The applicant had also made an investment of nearly Rs 200 Crores for setting up of the transmission and distribution infrastructure.

Similarly, Synefra Engineering & Construction Ltd. (formerly Suzlon Infrastructure Ltd.) made a similar application in 2008 before GERC for distribution of electricity in Kandla SEZ, which fell within the geographical area being served by Madhya Gujarat Vij Company Ltd. (MGVCL) without generating any electricity, having received sanction from MGVCL for 10 MVA of power at 66 kV level for further distribution of electricity within the SEZ, if allowed. In this case as well, the applicant had made an investment of about Rs 16 Crores in setting up a transmission & distribution network.

In both the cases, the following stands were taken by various stakeholders:

➤ **Government of India**

The Government of Gujarat approached the Ministry of Commerce, Government of India on the requirement of license for distribution of electricity under the SEZ Act, 2005. In response, the Government of India issued guidelines dated 21 February 2009 under which it was mentioned that the exemption notifications could be issued on case to case basis by following due process of law. As such, either a distribution license under the Electricity Act or a Notification under the SEZ Act would serve the purpose of supplying electricity to the consumers in the SEZ area. Therefore, it was understood that the “purpose would be served” once the appropriate Commission grants a distribution license for the SEZ area to the applicant.

➤ **Government of Gujarat**

The implication of “generation and distribution” in Section 14(1) (i) of the Gujarat SEZ Act, 2004 was examined by the legal department of the Government of Gujarat. The Legal Department opined that SEZ developers are at liberty to distribute electricity in the SEZ area without generating the same themselves and they may arrange power from other source(s). Such a developer is eligible for grant of license for distributing the electricity in the SEZ area. The Government expressed its firm view that SEZ developers may be granted a distribution license with a universal power supply obligation to distribute electricity in the entire SEZ area and once the license is granted to SEZ developer, the area may be considered as excluded from the license area of distribution companies.

➤ **Existing Discom**

The Discom in whose area of supply the respective SEZ was located had no objection to grant of Distribution License to the applicant for the area as prayed. However, the existing Discom submitted that on grant of license to the applicant, it would not entertain any new demand for power in the licensed area, i.e. it would no longer be obliged to discharge duties as a Licensee in that area.

On the basis of remarks received from various stakeholders as summarized above and on a thorough legal reading of all relevant documents pertaining to grant of license for distribution of electricity, the GERC observed that Section 11 of the Gujarat SEZ Act, 2004 made it clear that the SEZ area is an Industrial township under the clause (1) of Article 243-Q of the Constitution of India. Thus, the area proposed to be served by the applicant(s) fulfilled the criteria of area for getting second Distribution License as laid down in the National

Electricity Policy.

Further, after going through various documentary submissions made as required by the applicants and resolution of relevant legal issues as discussed above, in both cases the Commission proceeded to issue distribution license for 25 years to the applicant for the SEZ area as prayed for, after notification of a Public Notice to that effect and hearing the objections received. However, the Commission did not exclude the SEZ license area from the area of supply of the existing Discom, deeming that “exclusion of the area is against the interest of public, because it will lead to restriction in their choice.”

7. Parallel Distribution Licensing Scenario of Mumbai

7.1 Background

In the Mumbai region of the Maharashtra state, four distribution licensees hold the licence to distribute electricity within the areas specified in their respective licences and within the ambit of the relevant orders of the Maharashtra Electricity Regulatory Commission (MERC) and various judgments of the legal bodies. The four distribution licensees are:

- Brihan Mumbai Electricity Supply and Transport Undertaking (BEST)
- Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL)
- Reliance Infrastructure Ltd. (RInfra-D)
- The Tata Power Company Ltd. (TPC-D)

Figure 10: Map of Mumbai



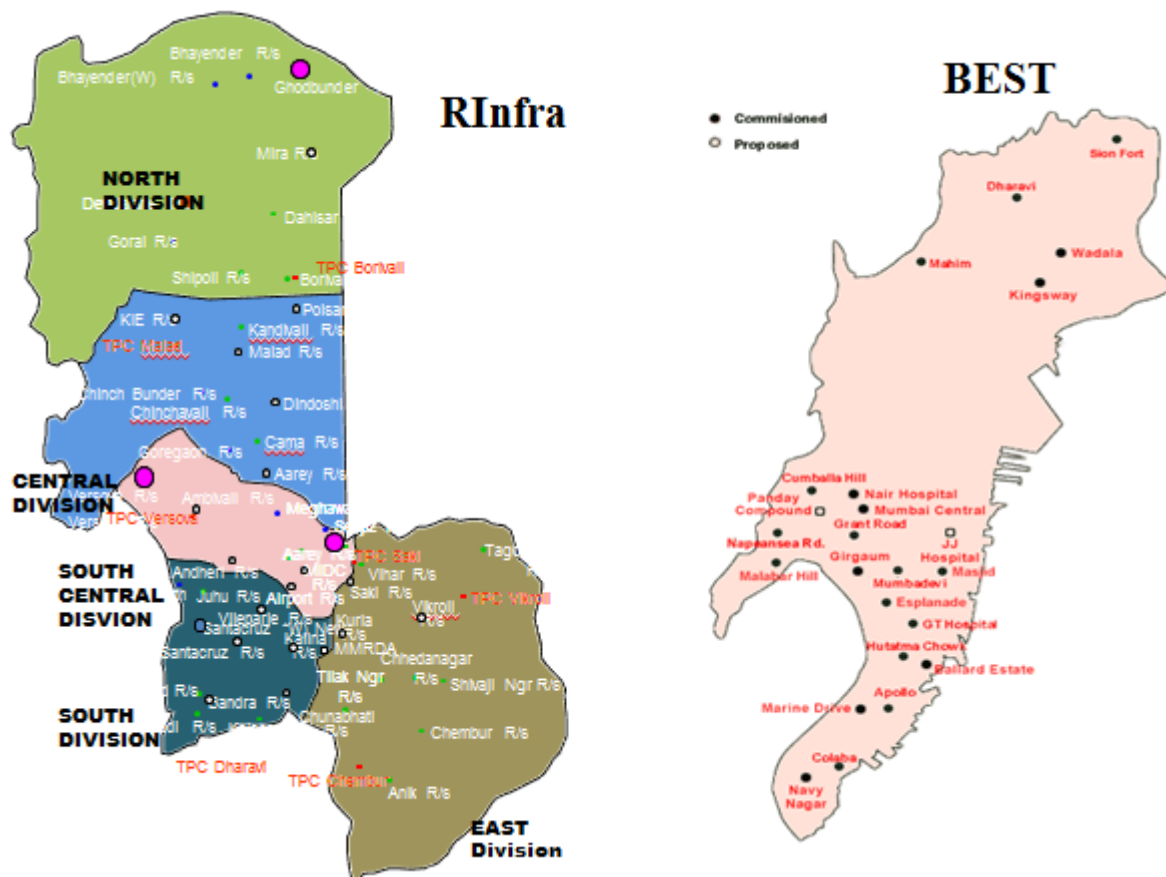
While BEST, RInfra-D, and MSEDCL operate within specific distribution licence areas allocated to them, distinct from each other, TPC-D, on account of its historical background and the Supreme Court judgment delivered on 8th July, 2008, is licensed to distribute power in the entire Mumbai region excluding all the areas served by MSEDCL. The Hon'ble Supreme Court, in its Judgment dated July 8, 2008, ruled that the Tata Power Company has the licence to supply electricity to retail consumers. In the same Judgment, the Hon'ble Supreme Court clarified that till TPC lays down its own distribution network, they can utilize the provision of wheeling as per the Electricity Act, 2003 and use the existing network of other Distribution Licensee for supplying power to the consumers.

The above said Judgment of the Hon'ble Supreme Court and the MERC (Specific Conditions of Distribution Licence applicable to The Tata Power Company Limited) Regulations, 2008, notified on August 20, 2008, enabled the consumers in Mumbai to choose their electricity provider. In June 2009, the Commission issued Tariff Orders for TPC-D as well as RInfra-D. Further, in order to create awareness about availability of choice of electricity provider amongst the consumers in the suburbs of Mumbai, on July 22, 2009, the Commission issued Clarificatory Orders providing comparative tables of tariff of TPC-D and RInfra-D supplying power in the suburbs of Mumbai. The savings were in the range of around 13 to 41% in the electricity bill, if the consumers in different consumer categories changed over from RInfra-D to TPC-D.

TPC-D filed a Petition before the Commission in Case No. 50 of 2009 for formulating the changeover procedure. The Commission, after hearing both RInfra-D and TPC-D and after undertaking Public Hearings in the matter, issued an Interim Order in Case No. 50 of 2009 on October 15, 2009 prescribing the protocol for changeover of consumers from one Distribution Licensee to another. In the said Order, the Commission stipulated that the consumer can changeover from RInfra-D to TPC-D by using RInfra-D's distribution network, by paying wheeling charges to RInfra for use of their wires. Under this arrangement, RInfraD was called as the Wire Distribution Licensee (WDL) and TPC-D was called as the Supply Distribution Licensee (SDL), and the roles and responsibilities of the WDL and SDL were clearly laid down in the above-said Interim Order dated October 15, 2009. Based on the above-said Order dated October 15, 2009, the consumers of RInfra-D started changing over to TPC-D for availing the benefit of lower tariff.

Thus, there are multiple distribution licensees in each area. Each licensee has an obligation to supply electricity to all consumers, who demand electricity supply from them (Universal Service Obligation). In this context, to enable the discharge of the supply obligation by the distribution licensees, pending development of their own infrastructure/network, interventions were made by MERC so that cost is optimized.

Figure 11: Area of Supply of RInfra, BEST, TPC



- Distribution licence area of TPC-D overlaps with that of RInfra-D and BEST area

7.2 Provisions in the Electricity Act with respect to Competition in Distribution

The Electricity Act, 2003 defines **distribution a licensee** as follows:

“(17) distribution licensee means a licensee authorised to operate and maintain a distribution system for supplying electricity to the consumers in his area of supply...”

Distribution system is defined as:

“(19) distribution system means the system of wires and associated facilities between the delivery points on the transmission lines or the generating station connection and the point of connection to the installation of the consumers..”

Further, the Act has defined types of licensees that can be issued by the Commission under **Section 14, Grant of license**, as follows:

“...14. The Appropriate Commission may, on application made to it under section 15, grant any person licence to any person – (a) to transmit electricity as a transmission licensee; or (b) to distribute electricity as a distribution licensee; or (c) to undertake trading in electricity as an electricity trader, in any area which may be specified in the licence:..”

Thus, the distribution licensee is defined to pursue an unified activity comprising owning of wires as well as retail supply. The Act does not envisage separate wire (or wheeling distribution) licensees and retail supply licensees as seen in some other countries. However, the competition in the distribution segment and the consumer choice under the Act is enabled through the open access route and through the parallel distribution licensee route.

In case of open access, the Act has given the State Commission discretion for introduction of open access in phases and subject to conditions as specified by the Commission. The relevant provisions of the Act are as given below:

*“....(47) “ **open access** ” means the non-discriminatory provision for the use of transmission lines or distribution system or associated facilities with such lines or system by any licensee or consumer or a person engaged in generation in accordance with the regulations specified by the Appropriate Commission;”*

“.. 42. (2) The State Commission shall introduce open access in such phases and subject to such conditions, (including the cross subsidies, and other operational constraints) as may be

specified within one year of the appointed date by it and in specifying the extent of open access in successive phases and in determining the charges for wheeling, it shall have due regard to all relevant factors including such cross subsidies, and other operational constraints:..”

MERC has already framed open access regulations which allow open access to consumers with contract demand of not less than 1 MVA. However, if required, MERC can allow open access at consumer below such contract demand also in order to give consumers choice or to introduce further competition in the distribution sector.

In case of parallel distribution licensees, the relevant provision of the Act is:

“ ..14.....Provided also that the Appropriate Commission may grant a licence to two or more persons for distribution of electricity through their own distribution system within the same area, subject to the conditions that the applicant for grant of licence within the same area shall, without prejudice to the other conditions or requirements under this Act, comply with the additional requirements (including the capital adequacy, credit-worthiness, or code of conduct) as may be prescribed by the Central Government, and no such applicant who complies with all the requirements for grant of licence, shall be refused grant of licence on the ground that there already exists a licensee in the same area for the same purpose: ...”

With respect to parallel distribution licensees, during 2003, various players filed applications for grant of distribution licenses, using their own distribution network, for various areas under the provisions of the Electricity Act, 2003. However, due to various reasons including non-submission of network rollout plan and availability of information from the incumbent licensee, the process has not resulted in the issuance of any new parallel distribution license. However, the recent Supreme Court judgement and the commercial arrangement between RInfra-D and TPC-D have helped operationalization of parallel distribution in a unique way, i.e., without duplicating the network. It is clarified that though the discussion paper, at various places, deals with the operationalization of parallel distribution, utilizing incumbent distribution licensee’s wires, the possibility of parallel distribution licensees using their own distribution network for retail supply, as envisaged in Section 14 of the Electricity Act, 2003, is not ruled out. Both the modes of retail supply, i.e., using one’s own network or utilizing an

incumbent distribution licensee’s network are expected to co-exist. The issues discussed in this discussion paper are applicable to both the situations.

7.3 Geographical license Area of Supply in Mumbai

Table 2: Area of Supply

Licensees →	RInfra	BEST	Tata Power
License Area (Geographical)	<u>Mumbai Suburbs</u> (From Sion to Kanjurmarg , and Mankhurd in Central Suburbs & from Mahim to Mira - Bhayander in Western Suburbs (Overlapping & Common with TPC-D supply area))	<u>Island City</u> Bombay City District ,from Colaba to Sion and Mahim (Overlapping & Common with TPC-D supply area)	<u>City & Suburbs</u> Area covered under R-Infra-D and BEST License area.
Area	384 Sq Km	70 Sq Km	454 Sq Km
Population Served	~ 120 Lakh	~40 Lakh	~160 Lakh
Total No of consumers	25 Lakh	10.5 Lakh	4.29 Lakh
No of Low end consumers (< 300 Units of residential consumer)	18.82 Lakh	6 .58 Lakh	2.43 Lakh

Licensees →	RInfra	BEST	Tata Power
Power Sales in MU per annum (Total)	6594	4758	6974
Power Sales (Residential in MU per annum 0-300 units)	2950	1480	707
Annual Revenue Requirement (FY 13-14) Rs. Crore	5289	4027	5069.06
Average Power Purchase Cost (Rs/kWh)	4.234	5.59	4.48
Average Cost of Supply (ACoS) (FY 13-14)	Rs. 8.13 per kWh	Rs. 9.97 per kWh	Rs. 6.35 per kWh

7.4 Chronology of Events

Table 3: Chronology of Events

Month/Year	Particulars
1905	The first distribution license was issued to Bombay Electric Supply and Tramways Company Limited, presently BEST License, on 7.7.1905 under

Month/Year	Particulars
	the provisions of the Indian Electricity Act, 1903
1907	The 1907 License- commonly known as the Bombay(Hydro-electric) License, which was originally granted on 5.3.1907 to Dorabji J.Tata and Ratanji J.Tata
1919	The Andhra Valley (Hydro-electric) license, which was issued on 3.4.1919 in favour of the Tata hydro Electricity Supply Company Ltd.
1921	Nila Mula Valley License, which was issued on 15.11.1921 in favour of Tata Power
1926	The Bombay Suburban Electric License which had initially been issued on 29.5.1926 in favour of Killick, Nixon and Company and Callender's Cable & Construction Company Limited
1930	The said license was assigned to the Bombay Suburban Electric supply Limited on 13.35.1930
1953	Trombay Thermal Power Electric License which was issued on 19.11.1953 in favour of the Tata (Hydro-Electric) Power Supply Company Limited, the Andhra Valley Power Supply Company and Tata Power
November, 1986	BSES license renewed with pre-condition for setting up 500 MW generating station
1995	BSES's (RInfra) 500 MW Dahanu TPS Commissioned
1998	BSES proposal to set up 495 MW generating station at Palghar
1998	TPC proposed a project of 450 MW in Bhivpuri
1998	GoM constituted Kukade committee in 1998 to review the demand for power in Mumbai. It recommended both the projects at Bhivpuri and Palghar
March, 1998	TPC in its letter to MSEB submitted that it has already built facilities to cater to 900 MW load of BSES

Month/Year	Particulars
1998	No sanction from MSEB to BSES Palghar project
2000	BSES proposal to set up 495 MW Saphale generating station
2000	MSEB gave consent to the Saphale Power Plant
April, 2001	TPC filed a writ petition in Bombay High Court stating that being a Bulk Licensee it is able to meet the demand of Mumbai
2001	Tata Power withdrew the writ petition- in the judgment a liberty was granted to raise contentious/objections before C.E.A.
2001	Saphale's project approval was denied by CEA based in recommendation from MSEB
2003	Electricity Act, 2003 Notified
2003	Correspondence between BSES (RInfra) and TPC to procure power
July, 2005	BEST petition in Case No. 27 of 2005 submitted for approval of PPA between BEST and TPC (without quantum)
2005	The Commission vide its Order December 9,2005 in Case 4 of 2003 directed REL and TPC to enter into long power purchase agreement within 3 months from the date of the Order
October, 2006	The Commission in its Order in Case No. 12 of 2005 and 56 of 2005 allocated 719 MW based on Non-Coincident Peak Demand to RInfra in the absence of PPA
December, 2006	BEST submitted a petition for approval of 800 MW dated Revised Power Purchase Agreement (PPA) and RInfra intervened in the said petition (Case No. 87 of 2006)
April, 2007	The Commission in its Order (TPC-G) in Case No. 72 of 2006 has allocated 762 MW to based on Coincident Peak Demand to Infra in the absence of PPA's and TPC has submitted that TPC-G expects to commission Unit 8 of 250 MW in and the share of capacity of 100 MW is agreed with REL

Month/Year	Particulars
November, 2007	The Commission approved the PPA between TPC-G and BEST for 800 MW and the PPA between TPC-G and TPC-D for 477 MW
2007	RInfra approached ATE (Appeal No. 143 of 2007 and I.A. No.70 of 2008) against MERC disregarding historical arrangement, and BEST & TPC approached ATE against MERC power under Section 23 to directed Generator to reallocate power
March, 2008	TPC submission in RInfra-D Petition in Case No.66 of 2007 submitted that since PPA not signed up with RInfra, unallocated capacity of 100 MW was tied up with TPCTL
May, 2008	ATE held that historical arrangement should have been considered and therefore remanded the matter back to MERC.
June, 2008	The Commission in Case No. 66 of 2007 has considered 500 MW from existing capacity of TPC-G to REL-D with effect from April 1, 2008
2008	TPC, BEST appealed to Supreme Court challenging the powers of MERC to intervene under Section 23 stating Generator cannot be directed by Regulator
May, 2008	Interim stay on ATE Judgment (Appeal No. 3510-3511 of 2008) granted by Supreme Court

7.5 Supreme Court's Judgement (Appeal No. 2892 of 2006)

The Supreme Court of India, in its judgement dated 8th July 2008, held that TPC-D is entitled to supply electrical energy in retail, directly to all consumers within its area of supply, as stipulated in its licences, thereby confirming TPC-D as a distribution licensee for the entire city of Mumbai. Subsequently, on August 20, 2008, the Commission notified the MERC (Specific Conditions of Distribution Licence applicable to The Tata Power Company Limited) Regulations, 2008, effectively confirming TPC-D as a distribution licensee for the entire city of Mumbai, covering the licence areas of both BEST and RInfra-D. TPC-D's

distribution licence is valid up to August 15, 2014. Thus, neither RInfra-D nor BEST have a monopoly distribution licence in their respective licence areas.

Subsequent to Supreme Court order, TPC- D and R Infra-D entered into discussion to effect supply to changeover consumers. The discussions culminated in TPC filing a petition before MERC (Case 50 of 2009) The “Interim Order” of MERC in the said case facilitated the development of parallel distribution, utilizing other licensees’ network. This not only gives consumers choice and quickly introduces retail competition, but does so without replicating network infrastructure.

Table 4: Chronology of events after Supreme Court Judgement

Date/Year	Particulars
September 15, 2008	RInfra’s letter to TPC proposing to sign PPA of 500 MW without prejudice
September 19, 2008	TPC’s letter proposing to sign PPA of 500 MW without any pre-condition
April 13, 2009	RInfra’s letter agreeing to sign PPA without any pre-condition
April 28, 2009	TPC’s letter welcoming RInfra’s move and agreed to exchange draft of PPA and jointly approach SC to record settlement
May 2, 2009	RInfra’s Letter suggesting to use PPA with BEST as the draft and nominate one person who will be responsible for executing the PPA
May 6, 2009	SC Judgment (Appeal No. 3510/11 of 2008): TPC being a generating company cannot be directed under Section 23 read with Section 86(1)(b) of the EA 2003 to supply electricity to a particular distribution licensee in the absence of a contract (PPA)
May 6, 2009	TPC’s letter saying they have to review their decision of signing PPA in light of SC judgment
May 9, 2009	RInfra’s letter requesting to sign PPA of 500 MW as it was agreed in the communication

Date/Year	Particulars
June 24, 2009	TPC's letter saying it is free to contract with any entity for its untied capacity of 500 MW
June 25, 2009	TPC's letter informing RInfra of its decision to withdraw 500 MW from April 1st, 2010
August 6, 2009	Rinfra's letter requesting TPC to re-consider its decision as it would lead to additional burden of Rs. 900 Cr. on low end residential consumers
August 31, 2009	A petition filed by TPC (Case No. 50 of 2009) before the MERC for allowing and enabling all consumers of Rinfra to exercise choice to receive supply of electricity from TPC)
October 15, 2009	MERC issued an Interim order, which detailed the Operating procedure for supplying power to consumers in the common area of license of RInfra-D using each other's existing distribution network. This has operationalised the parallel distribution license operations to promote competition in electricity sector.
February, 2010	MERC in its order dated February 22, 2010, had directed Tata Power to supply power in the BEST area by laying its own distribution network for discharging its obligation under section 43 of the Electricity Act to supply electricity to all consumers.
July 29, 2011	MERC permitted in-principle RInfra-D (Case No. 72 of 2010) to recover Cross-Subsidy and Regulatory Assets from the existing consumers of RInfra-D as well as consumers who are using RInfra-D's wires but receiving supply from TPC-D
September 9, 2011	MERC determined the Cross-Subsidy Surcharge in its Order in Case No. 43 of 2010
2011	TPC-D filed an appeal (Appeal No. 132 of 2011) against MERC's Order dated July 29, 2011 and before ATE
2011	RInfra-D filed an appeal (Appeal No. 178 of 2011) against MERC's Order dated September 9, 2011 before ATE

Date/Year	Particulars
October 21, 2011	RInfra-D filed a petition (Case No. 151 of 2011) before MERC under Section 43 of EA, 2003 seeking relief on account of certain issues affecting their financial viability
August 22, 2012	MERC passed an Order in Case No. 151 of 2011 directing TPC-D to lay its own network in 11 clusters within one year and on finding evidence for cherry picking by TPC-D, restricted the changeover consumers category to Residential 0- 300 Units
October 1, 2012	TPC-D filed an appeal (Appeal No. 246 of 2012 along with I.A. No. 401 of 2012) before ATE challenging MERC's Order dated August 22, 2012
October 5, 2012	RInfra-D filed an appeal (Appeal No. 229 of 2012 along with I.A. No. 368 of 2012) before ATE against MERC's Order dated August 22, 2012
December 18, 2012	ATE did not grant any interim directions in I.A. No. 401 of 2012 and I.A. No. 368 of 2012
December 21, 2012	ATE disposed off Appeal No. 132 of 2011 by upholding the validity of MERC Order
January 7, 2013	RInfra-D filed a petition (Case No.3 of 2013) seeking fresh determination of CCS based on MERC Order in Case No.180 of 2011
January 25, 2013	RInfra-D filed MYT petition (Case No. 9 of 2013) before MERC for Control period FY 2012-12 to FY 2015-16
February 7, 2013	Govt. of Maharashtra sent a letter in the proceedings in Case No.3 of 2013 to MERC stating that CCS may be de-linked from CCS reduction road map in Maharashtra
May 10, 2013	MERC passed an impugned order in Case No. 3 of 2013 and increased CCS for certain category of Consumers
June 21, 2013	ATE granted a stay on MERC Order dates May 10, 2013
June 28, 2013	MERC initiated a Suo Moto proceedings against TPC-D and RInfra-D to review quarterly progress reports submitted as per directions tended in Case No. 151 of 2011

Date/Year	Particulars
July 11, 2013	TPC-D submitted its reply elaborating the status of compliance with Case 151 Order
July 24, 2013	RInfra-D filed its submissions before MERC alleging TPC-D of violating Case 151 Order, Cherry picking and not complying with license Obligations
July 29, 2013	MERC passed a daily order directing TPC-D to submit its status and plan of complying with Case 151 Order of network development and information on switchover consumers from the 11 clusters
October 30, 2013	MERC issued an Order in Case No. 85 of 2013
August, 2014	<p>MERC in its order has allowed Tata Power Company (TPC) to supply electricity in Mumbai city, parts of suburban areas including Bandra to Dahisar in Western suburbs; Chunabhatti to Vikhroli and Mankhurd in Eastern suburbs for 25 years.</p> <p>It has also been granted licence to supply electricity in areas of Mira-Bhayander Municipal Corporation, Chene and Versova which were earlier not a part of its licence area.</p>
November, 2014	Appellate Tribunal for Electricity (Aptel) dismissed the appeal of Brihanmumbai Electric Supply and Transport (BEST) — which supplies power to south Mumbai residents at present — challenging Maharashtra Electricity Regulatory Commission’s (MERC) order granting distribution licence to Tata Power till August 2039.

7.6 MERC Case No. 50 of 2009

TPC-D filed a petition seeking approval of operating procedures for supplying power to consumers in the common area of license of RInfra-D using each other’s existing distribution network. In the petition TPC-D stated that though it had entered into discussions with RInfra-D to work out a protocol for smooth changeover of consumers and supply of power through

open access arrangements between both of them, the talks have failed as RIntra-D has insisted that the meters that are installed at the premises of its existing consumers would not only continue to belong to RIntra-D but also meter reading shall be done by it as provided by in the Maharashtra Electricity Regulatory Commission (Distribution Open Access) Regulations, 2005 (“The DOA Regulations”). Besides, a large number of consumers approached the Commission as well for changeover from RIntra-D to TPC-D. The commission after hearing the views of all the concerned parties passed an interim order stating operating procedures by exercising powers vested in it under Section 94(2) of the EA 2003 rules.

Metering and Meter reading, Billing and Collection

In the case of changeover in a parallel distribution situation, all retail suppliers are actually distribution licensees with integrated function, they are entitled to install own meters in the consumer’s premises. However, for a given set of consumers, to address the issue of changeover, if all the licensees invested in meters, there would be duplication of assets which would eventually lead to higher tariffs for consumers as the meter costs are finally recovered through the consumer tariffs. In the Interim Order, it has been proposed that the changeover consumer will have a choice to opt for a meter provided by the existing distribution licensee or supply distribution licensee or his/her own meter. Further, in the case of a changeover, there is a need to identify the responsibility of meter reading, billing, and maintenance of meters with one licensee (either wheeling licensee or retail supply licensee) to provide clarity to the consumers and to facilitate co-ordination in billing and redressal of complaints related with meters and billing. In view of the fact that the supply distribution licensee is taking care of the retail supply part of distribution and is the interface with the consumer, retail suppliers should be responsible for the meter reading and billing and not the wheeling licensee.

However, energy consumption by the consumers impacts the wheeling licensee through the distribution losses and energy purchase cost in the imbalance pool wherein a wheeling licensee will be required to pay the marginal cost for energy. In view of this, the supply licensee should provide meter reading to the wheeling licensee to cross-verify such readings for the purpose of computing distribution losses. To address the issue with respect to cross verification of meter reading data by a wheeling distribution licensee, it is suggested that the meters used by changeover consumers should have data transfer/download capability. Since the supply licensee is undertaking activities relating to sale of energy, the bills for changed-over consumers should be raised by the supply distribution licensee. Such bills should include

the wheeling charges and clearly state the name of the wheeling distribution licensee. The supply distribution licensee shall be responsible for collection of bills from the changed-over consumers.

Energy Accounting

In the context of parallel distribution licensees, some of the consumers of a licensee are likely to be connected through the network of other distribution licensees, thereby drawals of parallel supply distribution licensee will get embedded within the drawal of the wheeling distribution licensee. Since utility-wise sharing is required under the Interim Balancing and Settlement Mechanism (IBSM) /FBSM, in the absence of data at the interface meters, it is not possible to ascertain the drawals of each distribution licensee separately. To address this issue, it is proposed that the meter readings taken for the purpose of billing be grossed up to comply with the IBSM. The following method is proposed for energy accounting:

- a. Energy sales to changed-over consumers, as per meter readings of the supply distribution licensee taken for the purpose of billing, shall be shared by the supply distribution licensee with the wheeling distribution licensee and the State Load Dispatch Center (SLDC).
- b. Such energy shall be grossed up for distribution losses for the wheeling distribution licensee approved by the Commission and then subtracted from total T<>D recorded energy of the wheeling distribution licensee.
- c. Such adjusted energy shall be further grossed up for intra-state transmission losses to determine the wheeling distribution licensee's G<>T requirement for Intra-State Pool balancing and accounting.
- d. The same energy as worked out for wheeling distribution licensee at the T<>D level will be added to the T<>D recorded energy of supply distribution licensee.
- e. Such adjusted energy for the supply distribution licensee shall then be grossed up for intra-state transmission losses to determine the supply distribution licensee's G<>T requirement for Intra-state Pool balancing and accounting.

Wheeling Charges

As mentioned earlier, the billing responsibility lies with the supply distribution licensee. Hence, supply distribution licensee needs to pay wheeling charges to the wheeling distribution licensee within 21 days from the date of bills raised on changed-over consumers. Such payment has to consider the meter readings and wheeling charges included in the bills

raised on changed-over consumers. Such payment needs to be made irrespective of receipt of payment from changed-over consumers. Any delay in payment to attract an interest at the same rate as applied to the Wheeling Distribution Licensee's consumers.

Disconnection for non-payment and reconnection

The rationale behind disconnection for non-payment and reconnection is the same as mentioned in other parameters -- the supply is by the supply distribution licensee and hence the supply distribution licensee shall have the right of disconnection for payment default in respect of its bills raised on changed-over consumers. However, as the wheeling licensee controls the fuse/cut off as being part of network infrastructure, the supply distribution licensee has to exercise such a right through the wheeling distribution licensee after giving prior notice to the consumers as per Section 56 of the Act. Upon receipt of advice from the supply distribution licensee, the wheeling distribution licensee shall undertake disconnection provided that notice as per Section 56 of the Act is issued to the consumer. The supply distribution licensee shall raise the final bill on consumers after disconnection.

Customer service and interface

The supply distribution licensee would be the sole interface for the consumer and hence shall deal with all consumer service requirements and complaints including those relating to billing, meter accuracy, supply quality, network, etc. The supply distribution licensee shall inform the wheeling distribution licensee of all complaints relating to metering accuracy including action to be taken, including meter testing at site, at the supply distribution licensee's test laboratory, at the wheeling distribution licensee's test laboratory or at the independent laboratory, as the case may be.

The supply distribution licensee shall also inform the wheeling distribution licensee of all complaints relating to supply quality and network. The wheeling distribution licensee shall keep the supply distribution licensee informed about the status of redressal/closure of the complaint. Both supply distribution licensee and wheeling distribution licensee need to develop an efficient process of sharing information and ensuring that consumer service standards as per the Standards of Performance (SOP) are not compromised due to the changeover. Any changed-over consumer who proposes to change name, purpose, category shall continue to abide by the conditions of the changeover even after a change of name/purpose/category. The Supply Distribution Licensee shall inform the Wheeling Distribution Licensee of such changes.

Thefts and Inspection

Since the sale of electricity is carried out by the supply distribution licensee, it needs to have the right to inspect customer premises including meters to detect tampering of meters and also to establish misuse and unauthorized consumption, if any. In case of misuse, the supply distribution licensee has to initiate appropriate proceedings against the consumer and advise the Wheeling Distribution Licensee to carry out disconnection in accordance with the Act. As the distribution losses and energy purchase cost in the imbalance pool is by wheeling licensees, it shall have the right to inspect meter and cut-out seals from time to time and take meter readings for all changed-over consumers. Wheeling distribution licensee can use meter reading data provided by the supply distribution licensee and compare the same with its own meter reading data to establish any prima-facie case of theft/meter tampering.

The assessment energy, in cases where theft by meter tampering / bypassing meter is established, shall be considered as default supply by the wheeling distribution licensee and will be computed and recovered from consumers as per the provisions of Section 126 of the Act. The wheeling distribution licensee, as per Section 126 (e) of the Act, shall use its rate, equal to one-and-a half times the tariff rates applicable for the relevant category for computation of charges for such assessed energy. The wheeling distribution licensee shall provide such information to supply the distribution licensee. The supply distribution licensee shall bill and recover such charges from the consumer and make payments to the wheeling distribution licensee.

Standards of Performance (SOP)

The supply distribution licensee shall be the sole interface to the consumer and therefore responsible for adherence to SoP relating to the period of giving supply, quality of supply (voltage, harmonics), system of supply, restoration of supply, restoration in burnt meter cases, reconnection on payment of amounts due, etc. Except for occurrences beyond the control of the wheeling distribution licensee, it shall honour its obligations to adhere to SoP. In order to provide non-discriminatory access to the wires, the wheeling distribution licensee should not discriminate between changed-over consumers and its own consumers for provision of wheeling services. Since the supply distribution licensee shall be the sole interface to the consumer, for non-adherence to SoP, the supply distribution licensee shall have the right to demand from the wheeling distribution licensee, reimbursement of compensation paid to affected consumers.

Changeover Procedure

Application for changeover

Some of the salient points of change over application are as given below:

- No consumer who has been disconnected for payment default will be allowed a changeover without clearing the dues of the existing distribution licensee. The consumer shall attach a copy of the last bill served by the existing distribution licensee, proof of its payment, and other relevant documents as required under the Electricity Supply Code (ESC).
- The Consumer shall not be required to obtain the No-objection certificate (NOC) from the existing distribution licensee.
- Application for changeover shall be submitted by the consumer to the new distribution licensee. The consumer shall pay application processing fees as per the Schedule of Charges approved by the Commission as per the ESC.
- The consumer shall indicate her/his choice in terms of meters, i.e., meter provided by the Existing Distribution Licensee to be continued or meter to be provided by the New Distribution Licensee or consumer to purchase own meter
- The consumer shall not be permitted to change his/her name or the purpose or the classification category at the time of the changeover.

Pre-Changeover Activities

- New distribution licensee shall inform the existing distribution licensee on a daily basis (in the agreed format) regarding completed application forms received. The existing distribution licensee shall share with the new distribution licensee information relating to any arrears/disputes/court cases, etc. for consumers proposing to change over within three days of receipt of information from the New Distribution Licensee.
- New distribution licensee shall inspect the consumer premises to confirm classification, connected load, technical issues, if any, etc. within the timeframe stipulated under SoP.
- The new distribution licensee shall estimate the security deposit to be provided by the consumer as per ESC and intimate the same to the consumer. The consumer shall pay such a security deposit amount to the new distribution licensee.
- In case of sanctioned load equal to or higher than 50 KW, the Consumer shall have to enter into an agreement with the New Distribution Licensee at the time of the changeover.

Changeover

- The changeover shall coincide with the next scheduled meter reading date of the existing distribution licensee subject to minimum seven working days from receipt of intimation from the new distribution licensee.
- In any case, the changeover cannot take more than 30 days from the receipt of the completed changeover application by the new distribution licensee. The wheeling distribution licensee and the new distribution licensee will agree on a suitable date for changeover within a 30-day period, if the next meter reading date falls beyond such a period.
- In case a consumer opts for a new distribution licensee's meter or own meter, the same shall be tested by the new distribution licensee at its laboratory and installed at the consumer's premises. The existing distribution licensee will remain present at the time of such testing.
- In case of meters provided by existing distribution licensees, such meters will be tested jointly on-site as per an agreed schedule between the existing distribution licensee and the new distribution licensee, ideally at the time of the changeover.
- In case metering involves CT/PT, then there shall be a joint schedule for verification of CT/PT ratios.
- All meters and cutouts for changeover consumers shall be safeguarded against unauthorized access by way of sealing. For the meters provided by the new distribution licensee and consumer, sealing shall be done by the new distribution licensee and for meters provided by the existing distribution licensee, sealing shall be done by the existing distribution licensee. The cut-out in all cases shall be sealed by the existing distribution licensee.
- The meter reading on changeover date shall be taken jointly. The consumer may remain present at the time of a joint meter reading, if so desired by the consumer and if it is practicable. Such meter reading shall be the final meter reading of the Existing Distribution Licensee and opening meter reading of the New Distribution Licensee, irrespective of the choice of meter by the consumer. Such meter reading shall be counter-signed by the Existing Distribution Licensee, New Distribution Licensee and the consumer, if present at the time of the joint meter reading.

- The existing distribution licensee shall raise the final bill based on the final meter reading. The consumer shall pay the existing distribution licensee's final bill on or before the due date.
- The existing distribution licensee may adjust the security deposit (with the existing distribution licensee) in the event of payment default, if any, and refund the balance security deposit within seven working days from the due date for final bill.
- In case of any non-payment or partial payment of the final bill of the existing distribution licensee (after adjusting security deposit, if any) by the changed-over consumer, provisions of Section 56 (Disconnection of supply in default of payment) of the Act shall apply.

7.7 MERC Case No. 151 of 2011

It is estimated that subsequent to the Supreme Court judgment in July 2008 and the MERC order operationalising parallel licensing in September 2009, there has been a migration of ~300 MW load from Reliance Infra to TPC in Mumbai. In the financial year 2011-12, about 1.2 lakhs consumers migrated from RInfra-D to TPC, of which residential consumers accounted for 88%, followed by commercial segment (11%) and industrial segment (1%). As per industry experts, TPC's competitive rates led to the surge in migration. According to the proposal for rates filed with the MERC in FY 2010-11, the average billing rate of Reliance Infrastructure's distribution wing stood at Rs 7.06/kWh, against Rs 5.20/kWh for Tata Power's distribution arm. In particular, for cross-subsidizing categories i.e. the highend consumers of RInfra-D, shifting to TPC has so far entailed a reduction in cross-subsidy surcharge due to the consumer mix of TPC (with a greater proportion of high-end consumers as compared to RInfra-D, which RInfra-D has called a result of “**cherry picking**” of new consumers by TPC) along with more competitive tariffs.

The Levy of Cross Subsidy Surcharge and Regulatory Asset surcharge on changeover consumers

Commission and defined various groups (Group-I, Group-III and Group-III) for payment of Cross Subsidy Surcharge (CSS) and Regulatory Assets and allowed applicability of the same for changeover consumers to TPC-D.

- **Group I:** Consumers connected to RInfra-D who continue to receive supply from RInfra-D;
- **Group II:** Consumers who continue to be connected to RInfra-D, but have migrated to TPC-D for receiving supply, i.e., consumers who are receiving supply from TPCD through RInfra-D's wires;
- **Group III:** Consumers who are no longer connected to RInfra-D and have migrated to TPC-D for receiving supply, i.e., consumers who are receiving supply from TPCD through TPC-D's wires;

Of the above, only Group II consumers were required to pay cross-subsidy surcharge. Thereafter, RInfra-D filed a petition before MERC (Case No.151 of 2011) under section 43 of the Electricity Act, 2003 against large scale migration of consumers and raised the issue of “cherry picking” of consumers by TPC. The licensee submitted that with the current cross subsidy surcharge being zero, shift of industrial consumers out of RInfra-D was resulting in loss of subsidy which would ultimately burden low-end consumers in the form of a tariff shock.

RInfra-D has computed the net financial loss to RInfra-D on account of changeover as per the following methodology employed:

Net Financial Loss to RInfra-D = Loss of Revenue – (Reduction in Power Purchase Cost due to changeover + Receipts of Wheeling charges and Cross Subsidy Surcharge).

The amounts submitted are summarized in the Table below:

(Rs. Crore)

Year	FY 2009-10	FY 2010-11	FY 2011-12	Total
Loss of Revenue	181.28	1,293.71	2,312.58	3787.57
Less: Reduction in power purchase cost	144.00	956.67	1,073.72	2,174.39
Less: Income from Wheeling charges	15.26	121.75	216.14	353.15

Less: Income from CSS	0	0	49.74	49.74
Net Revenue Loss	22.02	215.29	1,022.72	1,260.03

On 9 September 2011, the MERC issued an Order for de-novo redetermination of Cross Subsidy Surcharge for open access transactions and applicability of the same to changeover consumers.

Restriction on migration from RInfra-D to TPC vide MERC Order (Case No.151 of 2011) dated August 22, 2012

In view of large scale consumer migration of high-end consumers, RInfra-D filed a petition before MERC seeking relief on account of certain issues affecting RInfra-D and its financial viability. In its order dated 22 August 2012 on the petition filed by RInfra-D, the Commission decided as quoted below:

“the Commission has come to the conclusion that there is a need to intervene in the manner of changeover and switchover of consumers (...) and there is a need to calibrate the migration of consumers from one Licensee to another, in order to ensure a level playing field and also to protect the interests of low-end consumers being supplied electricity in the Common Area of supply between RInfra-D and TPC-D.”

Accordingly, the MERC ordered that henceforth, consumer migration would allowed from RInfra-D to TPC only for the residential category of consumers and that too only for consumers who consume electricity up to 300 units a month.

Table 5: Matrix for migration of Consumers from RInfra-D to TPC-D

Particulars	Consumers in 0-300 Units Residential Category	All consumers other than 0-300 Units residential category	Allowed in Which Wards/ Clusters	Distribution Network being used
Changeover	Allowed	Not allowed	All	RInfra-D distribution network

Switchover (means disconnected from one DL and re-connected on wires of other DL)	Allowed	Not Allowed for Applications made for a period of one year from the date of issue of this Order (since the new changeover/switchover Applications from categories other than 0-300 units residential category are blocked) However, switchover is allowed for existing changeover consumers who have applied before the date of this Order	Selected Clusters/Wards	TPC-D's own distribution network
Direct	Allowed	Allowed	All	TPC-D's own distribution network

In addition to restriction on Changeover/Switchover of consumers, The Commission also ordered TPC-D to focus all its energies and capital expenditure to ensure that by the end of one year from the date of this order, TPC-D has rolled out its entire distribution network in the clusters identified in such manner that it is in a position to provide supply through its own distribution network to existing and prospective consumers located anywhere within these Clusters, within the minimum time period of one month specified under MERC SOP Regulations. Besides the Commission also decided to monitor the progress of consumer addition by TPC-D (changeover, switchover, new connections, reverse migration, if any) on quarterly basis (June, September, December, March).

7.8 MERC Case No.85 of 2013

This was Suo Motu hearing in the matter of Review of Quarterly Progress Reports in Case No. 151 of 2011 submitted by TPC-D and RInfra-D. During the course of the proceedings the Commission directed TPC-D to submit the following for analyzing the progress:

- Detailed plan of action and timeframe for the Original Network Rollout plan for the entire license area.

- Reassure the commission regarding its performance and show sense of urgency, seriousness and responsibility as the first Distribution Licensee and fulfilment of its Universal Service Obligations (USO).
- Status of Network development
- The status of changeover and switchover of consumers in the above area post the changeover protocol issued by the Commission.

RInfra- D accused TPC-D in its submission of failure in complying with the Commission's Order in Case No. 151 of 2011. They said TPC-D has not laid down its entire distribution network even in one cluster out of the said 11 clusters and meeting their USO through RInfra-D's network is an interim solution. Therefore TPC-D has to lay its own network in its licensed area.

While analyzing the submissions the Commission had two key issues for consideration-

- Has TPC-D complied with the Commission's directions for setting up its distribution network and if not, then what action should be taken against TPC-D?
- Has TPC-D stopped Cherry picking consumers and if not then what actions to be taken against them?

During the hearings the Commission found that TPC-D has avoided Cherry picking and there by complied with the Order of Case No.151 of 2011. With regard to issue mention in (a) above, TPC-D admitted that it is yet to achieve the target of roll-out of distribution network and is actually way behind the deadline of August 21, 2013. The Commission didn't approve of the failure on the part of TPC-D to lay down its own distribution network despite getting specific approval for capital expenditure scheme. It was of the view that the intent of introducing competition in the distribution business was to protect the interest of the common man specifically the low-end consumers by option of cheaper electricity to be sources from TPC-D for the identified 11 clusters which comprise of low-end residential consumers. In order to protect the interest of the said consumers the Commission exercised the powers given to it in the Section 233 of the EA 2003, the Commission decided that even though the consumers of the identified 11 clusters are connected to the distribution network of RInfra, they would be treated as direct consumers of TPC-D connected to TPC-D's network. The tariff charged to them would be the same as it has been approved in TPC-D's MYT Order (Case No.179 of 2011) for TPCD's direct consumers. Since these consumers are actually connected to RInfra, TPC-D shall pay Wheeling Charges and Regulatory Asset Charges on a

per unit basis, as approved by the Commission in RInfra-D's MYT order for the energy wheeled using RInfra-D's wires.

7.9 APPEAL NO.36 OF 2014 BEFORE ATE

TPC-D challenged the MERC Order (Case No. 85 of 2013) in Appellate Tribunal for Electricity (ATE). The said Order of MERC had held that on account of inertia TPC-D failed to comply with the former's order given in the Case No. 151 of 2011 and therefore had directed certain course of action for ensuring compliance as mentioned in the above paragraph. Aggrieved by the Order TPC-D filed an appeal against the Order at ATE on grounds that:

- The said Order amounts to distortion of Competition between TPC-D and RInfra-D, who have a common area of supply, as it restricts former to supply power to low end consumers without any conclusive proof of its default in its operations under the changeover scheme.
- MERC has failed to appreciate Section 42(1) of the Act which specifically requires a distribution licensee to develop and maintain "efficient, economical, and coordinated" distribution system in its area of supply. Therefore, requiring TPC-D to spread out its network irrespective of demand in each nook and corner of the license area clearly defeats the aforesaid statutory mandate.
- Even though the Commission has the power to approve the network rollout plan submitted by distribution licensee, it is not open for the Commission to direct the planning and formulation of such network rollout plan in a particular manner irrespective of whether connection has been sought by consumers. Such interference amounts to micromanagement of the business of a distribution licensee by the Commission, which is not permissible under the Act.

8. Uniform Retail Tariff

8.1 Status of Retail Tariff in Various States

Uniform Retail Tariffs are prevalent in many states in India. In most of those states, such uniformity results from the fact that there is a single, large distribution licensee either in the form of a State Electricity Board or its successor entities that caters to all consumers in the state. In states where the reorganisation of the SEB led to creation of multiple licensees, for example in Orissa and Delhi, attempts have been made by the State Governments, in line with Clause 8.4(2) of the Tariff Policy, to bring about uniformity in tariffs in the period immediately after the reorganisation. This has been achieved either by allocation of low cost PPAs to licensees with unfavourable consumer/sales mix or by adoption of a formal mechanism of Differential Bulk Supply Tariff. The table given below compares the mechanism by which uniformity in tariffs is maintained in various states in India.

Andhra Pradesh (AP): There are four distribution companies in AP namely Central Power Distribution Company of Andhra Pradesh Limited, Eastern Power Distribution Company of Andhra Pradesh Limited, Northern Power Distribution Company of Andhra Pradesh Limited and Southern Power Distribution Company of Andhra Pradesh Limited, with each of them having uniform Tariff. The uniformity in tariff is maintained via differential subsidy to Discoms from the Government of Andhra Pradesh (GoAP) to categories namely- Domestic, cottage industries, public lighting, general and irrigation & agricultural.

Delhi: In Delhi there are four distribution licensees, namely, North Delhi Power Limited (NDPL), BSES Rajdhani Power Limited (BRPL), BSES Yamuna Power Limited (BYPL) and New Delhi Municipal Council (NDMC). While NDMC is a state run organisation, the other three are private utilities in which the Government of Delhi has a minority holding. The Policy Directions issued by the Government of Delhi as a part of the privatisation process mandated that the retail tariffs for all private DISCOMs shall be uniform till the end of FY 06-07. To facilitate this, Differential Bulk Supply Tariff (DBST) for each DISCOM was determined on the basis of its paying capacity. The State Government also provided support of upto Rs 3452 Cr to bridge the gap between the cost of power and the amount paid by DISCOMs under the DBST mechanism².

After the policy direction period ended, the DBST mechanism ceased to exist and thereafter PPAs were assigned to the utilities in such a manner that the tariffs are uniform across

different license areas. Also, upto 15% of the capacity of NCR Dadri TPS, IPGCL and PPCL was treated as unallocated and is provided to the DISCOM facing higher costs, by the State Government, to lend a measure of equalisation to the power purchase cost incurred by the different licensees. However, the responsibility for managing power purchase has been transferred to the distribution companies and there is thus no policy currently in place that requires Uniform Retail Tariffs to be maintained in Delhi. The tariff in the NDMC area continues to be different. Meanwhile, uniform tariffs have been approved for all DISCOMS in the tariff orders issued by the Delhi Electricity Regulation Commission (DERC) since FY 07-08

In the tariff order for FY 07-08, the DERC determined tariffs in such a manner that the utility with the highest costs (i.e. BYPL) was able to meet its revenue gap. The other two DISCOMS which had a revenue surplus were allowed to charge a tariff, higher than the tariff required to meet their revenue requirement. The additional amount recovered by these DISCOMS was retained by the licensees, but was parked separately as a Contingency Reserve to be used at a later stage.

In its last tariff order, for FY 09-10, the DERC approved a revenue surplus for each of the DISCOMS which had benefitted from reduction in AT&C losses in the city. The Commission continued the policy of uniform tariff for FY 09-10 as well and approved a differential revenue surplus for each utility.

Gujarat: In Gujarat there are four state owned distribution companies namely- Dakshin Gujarat Vij Company Limited, Madhya Gujarat Vij Company Limited, Paschim Gujarat Vij Company Limited, Uttar Gujarat Vij Company Limited and one private distribution licensee i.e., Torrent Power Limited that supplies power to the areas of Surat, Ahmedabad & Gandhinagar. The tariff charged by state owned distribution companies is different from that of the private licensee. The private licensee charges different tariff between the two areas it supplies electricity to i.e., the tariff in Surat are different from that of Ahmedabad & Gandhinagar. The uniformity in tariffs amongst the state distribution utilities is maintained by reallocation of PPA's and differential subsidy based on the sales made to the agricultural category.

Orissa: There are four distribution companies viz. Central Electricity Supply Utility of Orissa (CESU), Southern Electricity Supply Company of Orissa Ltd.(SOUTHCO), Western Electricity Supply Company of Orissa Ltd.(WESCO) and North Eastern Electricity Supply

Company of Orissa Ltd.(NESCO) in Orissa with each having uniform tariff. The distribution companies are privately owned. The uniformity in tariffs is maintained by having a differential bulk supply tariff. The DBST is determined based on the expected estimated revenue at the disposal of the utilities and their ability to pay the power bills, the transmission charge bills including SLDC charges and meet their statutory obligations including meeting the expenses towards establishment, maintenance and other allied expenses.

Rajasthan: In Rajasthan there are three state owned distribution companies viz Ajmer Vidyut Vitran Nigam Ltd. (AVVNL), Jaipur Vidyut Vitran Nigam Ltd. (JVVNL) and Jodhpur Vidyut Vitran Nigam Ltd. (JdVVNL). The Government provides differential subsidy to the distribution companies based on the quantum of agriculture sales made by them. Also there exists untreated gap for the distribution licensees. Moreover, the state has not witnessed a tariff hike since FY 05 and therefore the tariffs have remained at the same level.

Jharkhand: The primary supplier of electricity in the state is the Jharkhand State Electricity Board (JSEB). Besides JSEB, there are three other distribution licensees in the state, namely, Jamshedpur Utilities and Services Company (JUSCO), Tata Steel Limited (TSL) and Steel Authority of India Limited, Bokaro (SAIL-Bokaro) which supply power to the district of Saraikela-Kharsawan, the city of Jamshedpur and Bokaro Steel City respectively³. While the tariffs of JUSCO in the district of Saraikela-Kharsawan and Bokaro Steel City have been maintained at similar level as JSEB though untreated gaps and creation of regulatory assets, the tariffs in Jamshedpur are different than the tariffs in the rest of the state. The Uniform Retail Tariffs are not mandated by the State Govt. and the tariffs for each licensee are reflective of its cost of supply and consumer mix.

Haryana: In Haryana there are two state owned distribution utilities viz. Uttar Haryana Bijli Vitran Nigam Limited (UHBVNL) and Dakshin Haryana Bijli Vitran Nigam Limited (DHBVNL). The uniformity in tariffs is maintained via allocation of differential subsidy to the DISCOMs based on the projected volume of sales to agriculture consumers. There also exist approved untreated gap for both the DISCOM"s.

Table 6: Uniform Retail Tariff in India: A Comparison

State	Uniform/ Differential Retail Supply Tariff	Differential Bulk Supply tariff	Inter Utility Transfers	Regulatory Asset/ Untreated Gap	Support	Re- allocation of PPA
Andhra Pradesh	Uniform	No	No		Yes	No
Orissa	Uniform	Yes	No	Yes	No	NA
Gujarat	Differential	No	No		Yes	Yes
Rajasthan	Uniform	No	No	Yes	Yes	No
Delhi	Differential	Yes	No	Yes	No	Yes
Jharkhand	Differential	No	No	Yes	No	No
Haryana	Uniform	No	No	Yes	Yes	No

Source: Tariff Orders and PWC Analysis

8.2 Tariff Equalization Mechanisms

In a regulated electricity market, Uniform Retail Tariff would naturally come about when the cost and revenue structure of each distribution licensee is identical. Differential tariffs are thus a result of variation in cost and revenue structure across licensees. Various tariff equalization mechanisms have been designed by regulators and governments across the world that enable Uniform Retail Tariff; one method being transferring the costs incurred by a licensee with an unfavourable cost and revenue structure on to other licensees and second being providing additional revenue by other methods to such a licensee. Following are the mechanisms that help implementation of URT.

A. Differential Bulk Supply Tariff/Allocation of Low Cost Power

Differential Bulk Supply tariff (DBST) refers to a model of electricity supply known as Single Buyer Model where in there exists one buyer or company which buys electricity from different generators as per the power purchase agreement. The buyer then allocates the electricity among different distribution utilities. The bulk supplier can charge Uniform Bulk Supply Tariffs or Differential Bulk Tariff (DBST) from the utilities but the reason for its existence is mainly because the bulk supplier differentiates between the buyers or distribution utilities and levies differential bulk supply tariff on them. The differentiation is mainly on

account of varied sales and consumer mix, i.e., the buyer/ distribution utility with less revenue generating consumer mix would be charged the lower bulk supply tariff as compared to the DBST charged to the buyer having favourable consumer mix.

Merits

- DBST takes care, via power purchase allocation, of different load profiles of the distribution companies so that retail tariffs are uniform in the state for different categories of consumers. National tariff policy section 8.4 specifies the same.
- DBST enables implementation of Uniform Retail Tariff without any subsidy or government intervention in the sector.

Demerits

- DBST impacts allocative efficiency, i.e., it distorts investment decisions. If the licensee realizes that its efficiency would not be rewarded and indeed it would be penalized by way of costly power purchase rate, the licensee would not have any incentive to undertake efficiency enhancing investment.
- Creating and maintaining differential power purchase costs for licensees would not create a level playing field between the different licensees, which may be essential in an environment where there is consumer choice and therefore competition. Level playing field is essential when the licensees may have to compete in the open access market with each other.

B. Differential Transmission Charges

Apart from DBST, another mechanism by which costs can be equalised across licensees is through levy of differential transmission charges. The transmission charges paid by a distribution licensee in such a case are not reflective of the actual cost of utilisation of the transmission system but are rather adjusted to bring about a measure of equalisation in the overall costs faced by the licensees.

Merits

- This mechanism allows Uniform Retail Tariff to be implemented without any direct support by the government.

- The discount given to the different distribution licensees by the transmission licensee may be specified by a predetermined formula eliminating the need for excessive intervention by the government or the regulator in the sector.

Demerits

- If the transmission charges are paid on the ability to pay basis the transmission licensee bears the financial risk of under-recovery.
- The mechanism gives the licensees an incentive to exaggerate cost forecasts.

C. Geographical Boundary Redefinition

An effective mechanism for implementation of Uniform Retail Tariff is a direct transfer of resources to the licensee who faces an unfavourable cost/revenue structure from other licensees who enjoy a more favourable cost/revenue structure. The retail tariff under this mechanism is set at a level such that the aggregate revenue of all the licensees operating in the area is greater than or equal to the aggregate costs of all the licensees. At such a tariff, certain licensees operating in the area would be made to charge a tariff higher than the tariff required to be charged by them (“the financing licensee”) and other licensees would charge a tariff lower than the tariff required to be charged by them (“the financed licensee”). The additional revenue collected by the “financing licensee” is transferred to the “the financed licensee” to compensate the latter for the shortfall in revenue earned by it. Such a transfer may take place via a uniform tariff fund wherein the “financing licensee” makes payments into the fund as per a predetermined formula and the “financed licensee” draws the required additional revenue from the fund. Alternatively, there may be a direct transfer of the additional revenue collected by the “financing licensee” to the “financed licensee”.

Merits

- Creation of a uniform tariff fund enables implementation of Uniform Retail Tariff without any support or government intervention in the sector.
- Unlike the other mechanisms discussed above an inter-utility transfer does not create any distortions in the generation and transmission space and all the transactions are limited to the distribution licensees.

- URT under this mechanism may be implemented in the form of an additional surcharge payable by the consumers of the “financing licensee”. The additional surcharge is such that the total tariff payable by the consumers of the “financing licensee” is equal to the tariff of the “financed licensee” for any particular consumer category. Implemented in such a manner, inter-utility transfers is an easy to administer and transparent mechanism.

Demerits

- The mechanism provides the licensees an incentive to exaggerate cost forecasts to ensure higher payments from the fund.
- Transfer of resources from the utility with lower costs to the utility with higher costs may act as a disincentive for competition and efficiency.
- The gains from efficiency achieved by the “financing licensee” are not passed on to the consumers.

D. Government Support

The state government in several states in India such as Rajasthan and Karnataka provides deficit support to the licensees, who are primary government owned. Other states such like Gujarat, Maharashtra and Chhattisgarh provide support to select class of consumers, mostly BPL and agricultural consumers. In certain states the tariff equalization mechanisms discussed earlier have been used in conjunction with state government support to enable implementation of Uniform Retail Tariff. In Delhi, for example, the Differential Bulk Supply Tariff that was operational till 2007 was in fact a subsidized Differential Bulk Supply Tariff (BST) wherein the State Government provided support to the bulk supplier of electricity (the Transco) to enable uniform and stable tariffs in the city. Even for domestic consumers, the State Government provided support to negate hike in tariffs.

Merits

- A direct, targeted government support to a particular category of consumers that guarantees Uniform Retail Tariffs for that category of consumers may be preferred to cross subsidising consumers of one licensee by levying additional charges on consumers of other licensees or by increasing the tariff for other category of consumers.

- A targeted support would not only be more transparent, it would also ensure that the more efficient utility is not penalized for better performance.

Demerits

- A government support that enables a uniform retail tariff that is below the cost reflective tariff for the utilities will promote inefficiency as the utilities will not have any incentive to decrease costs.

8.3 Model for Implementing URT

At the outset it is being clarified that the following suggested models for implementing URT in Mumbai is only for LT I- Residential Category.

Model - Uniform Power Purchase Price

Our discussions in the above sections highlighted that the Average Power Purchase price for the three distribution licensee namely, RInfra-D, TPC-D and BEST, varies on account of variations in the power purchase agreement (Long term, Short term etc) signed by the respective entity.

Utility	RInfra-D	TPC-D	BEST
FY 2013-14 (Rs./kWh)	3.46	4.48	5.59
FY 2014-15 (Rs./kWh)	3.70	4.48	5.50
FY 2015-16 (Rs./kWh)	3.82	4.48	5.39

As per the MYT approved for these three entities, the sales (MU) for LT I Residential are:

Sales (MU)	RInfra-D	TPC-D	BEST
FY 2013-14	2883.48	1287.1	1836.45

FY 2014-15	2703.08	1514.06	1920.23
FY 2015-16	2523.33	1745.66	2015.14
Total	8109.89	4546.82	5771.82

This means in total 18,428.53 MUs are required by all three entities to supply power to LTI Residential category. Power Purchase Cost constitute nearly 80-85% of the total cost incurred, therefore rationalizing it for the LT-I Residential category can help in making tariff almost uniform across the utilities, but how to rationalize it is an issue.

One possible way of doing it is by purchasing 18,248.53 MU from the same source of generation. RInfra, TPC and BEST purchase power on a long term basis from DPSS (Rinfra) and TPC-G (TPC-D & BEST) respectively. Apart from this other sources are Bilateral exchange, Bidding or External sources for Mid or Short term purchase. Power generation price for each of the source varies on the account of fluctuations in the coal and oil prices. For example, Tata's Mundra plant was a source for cheaper generation of power and there by the prices of TPC-D were low in comparison to RInfra-D and BEST. Due to increase in international coal prices and change in Indonesian law from where Tata's import coal for Mundra plant, per unit cost of generation for TPC-G rose thereby increasing the purchasing price for TPC-D. In the meanwhile RInfra-D, which used to purchase bulk of its power from medium term sources, has signed a Long Term PPA with Vidarbha Industries Private Limited (VIPL). The Per Unit production cost for VIPL has gone down from Rs. 5.13 to Rs. 3.42 and thus the Average Power Purchase of RInfra-D has gone down. On the account of increasing cost of TPC-G, BEST's average power purchase cost rose too. To compensate for increase in TPC-G's cost, BEST resorted to External Sources which now provides more than 1000 MU on an average cost of Rs.4.40/kWh.

To bring uniformity in the average price for 18,248.53 MU of power, it is important that RInfra, TPC and BEST purchase the MU required by each of them i.e. 8109.89, 4546.82 and 5771.82 respectively, from the same source. This way any fluctuation in the generation cost would affect all the three utilities similarly, there by leading to either increase or decrease of prices simultaneously across the LT-I Residential Category.

On account of the Supreme Court Judgment in Appeal No. 3510/11 of 2008, no generating company can be directed under Section 23 read with Section 86(1)(b) of the EA 2003 to supply electricity to a particular distribution licensee in the absence of a contract. Since a generating company cannot be directed to supply electricity, to bring uniformity in retail prices the State Commission, MERC in this case, can direct the distributing licensee to sign a common power purchase agreement for MUs required for LT-I Residential Category. Apart from Power Purchase Cost, other factor which affect tariff is Finance charges i.e. RoE, Interest on long term loan etc. Since parallel licensing is permitted in Mumbai, TPC-D being second distribution licensee pays wheeling charges to RInfra-D for using its wire network as it is yet to build its own network. Similar arrangement will be done when TPCD starts supplying electricity in Island City as a second distribution licensee. Since the provision for parallel licensing requires each distributor to build its own network (in the absence of the law providing for separate wire and retail business, the draft amendment of which is at present lying in the Parliament), TPC-D will have to roll out its own network sooner than later. With Power Purchase cost being same for LT-I Residential category, finance charges will be the factor which will differentiate the tariff of the three utilities.

The finance expenses of RInfra-D and BEST is higher in comparison to TPC-D, which is the second licensee in area of supply of both the utilities. Due to the provisions mandated for a parallel licensee, TPC-D will have to roll out its own network to supply electricity. Rolling out of network will involve capital expenditure which is eventually passed onto the consumers. As approved by MERC in the MYT Petition (case no. 151 of 2011), TPC-D has to incur Rs.737.39, Rs.874.43, Rs. 81.84 Crores in the FY 2012-13, 2013-14 and 2014-15 respectively. Since 100% capitalization has also been approved for the same, the finance expenses of TPC-D is also likely to go up.

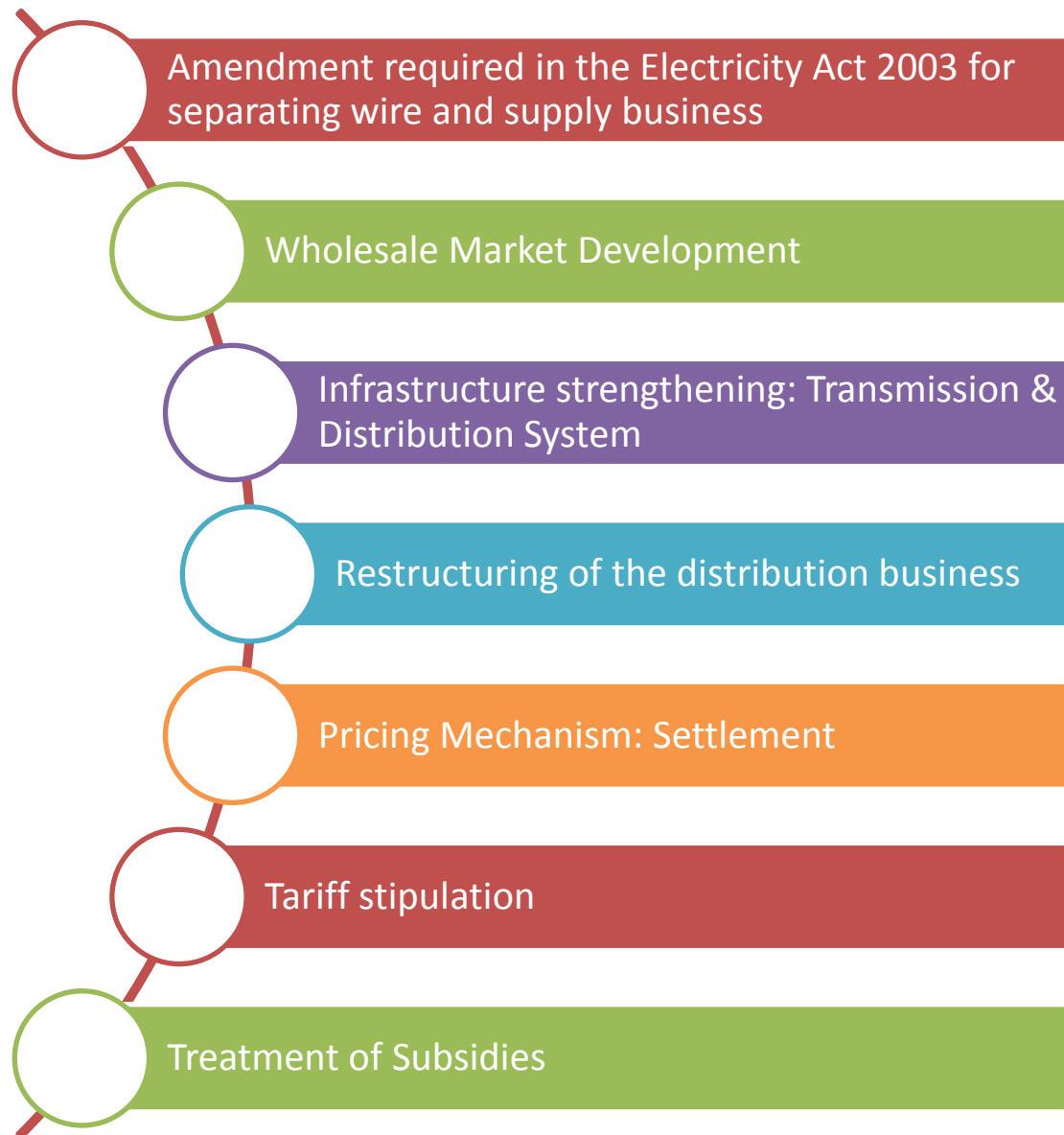
Therefore this way what has happened is:

- Power Purchase cost has been made uniform for all utilities thereby eliminating the fluctuations in Energy Charges.
- Variations in the finance expenses will create a 'bandwidth of tariff' for consumers in each LT-I Residential categories i.e. those who consume 0-100, 101-300, 301-500 and >500 units. Consumer mix and Cross subsidy surcharge will be factored in while determining tariff.

- This variation will also keep alive the competition in retail business which at present has been allowed in Mumbai i.e. RInfra-D Vs TPC-D and BEST Vs TPC-D. Since investments in the power sector is capital intensive, certain returns are guaranteed to ensure financial sustainability. Any profit margin above that will be decided by the competition. To ensure fair competition exists, MERC will have to take an yearly stock of consumer mix as any variation in number of subsidized and subsidizing consumers can threaten adequate returns and thereby threatening financial viability of the utility.

9. Recommendations

**The following challenges need to address before final reform measure:
Segregation of Wire and Content Business:**



Amendment required in the Electricity Act 2003 for separating wire and supply business

The Act gives power to the ERCs to grant multiple licenses to distribute electricity within the same area, but through their own distribution system. Though, the concept of multiple

distributors is well acknowledged, it comes with a pre- condition that licensees supply electricity through their own distribution networks. The definition of distribution licensee in the Act does not allow two different types of licensees i.e. one who operates the distribution system/network and the one who supplies electricity.

In order to have two different types of distribution licenses i.e. the network operator and supplier, the Act and the power it grants to the ERCs will have to be suitably amended. The definition of the term 'distribution licensee' will have to be amended and two different definitions, i.e. one for the distribution licensee as the operator of distribution system/network and the other for the distribution licensee as a supplier of electricity, will have to be added. Even the duties of the distribution licensee in the Act, will have to be amended and a clear demarcation of the role and duty of the two different types of distribution licensees, will have to be set out.

Wholesale Market Development

The initial reforms required for the implementation of retail competition in electricity industry is to create a mature wholesale market. In India the share of energy exchange or the short term market is less than 10%, which shows it require a continuous growth in the wholesale market. The demand-supply gap in a developing country like India is fast diverging on account of delays in commissioning of new generation capacities and the transmission corridor constraints. The remedy for the same is the development of wholesale electricity market, wherein electricity will be traded as any commodity and merchant power capacities will be encouraged. Most of the countries of the world which have developed retail competition have initially developed a competitive wholesale market prior to retail competition. Development of wholesale markets will lead to competitive conditions in the bulk supply which will pave the way for the liberalizations for the retail competition, gradually reducing the size of the customers who are offered the choice, with the aim of eventually offering choice to everyone and getting the distribution companies new business of wires networks and the retail supply to the consumers who are not interested in switching to new suppliers.

Infrastructure strengthening

The evacuation of the power from the generating station to the consumer end is function of the transmission and distribution network providers; this is an important segment of the market strengthening. The captive and merchant power plants in the various parts are not able access the network due to the congestion in the network and the lack of transmission.

The metering infrastructure needs to be strengthened and modernized to implement the retail competition. The actual consumption of the consumer need to be recorded in the hourly basis to calculate the tariff/price of their use, this requires the deployment of Time of the Day meters.

Restructuring of the distribution business

Next step to bring the retail competition in the sector is restructuring of the distribution business. The distribution and retail businesses should be separated either functionally or for accounts, as the ownership separation has several other implications including the stranded costs issue which are difficult to deal with. There should be a proper timeline prepared for the market restructuring. The separation would lead to greater transparency in the levied costs and help in improving efficiency in operation. As a case for the initial implantation process, it is a viable solution for metro cities as evident by the case study on Mumbai to bring in competition at the retail sector thereby benefitting the consumers in addition to drastic reduction in losses. Unlike the case of Mumbai, it is better to issue separate licensee for distribution and supply, Mumbai have parallel licensing for distribution as well as parallel distribution network. It is an inefficient way utilizing the resources.

Pricing Mechanism

The settlement becomes more complex as the number of market players increases. The right choice for settlements in the wholesale market is the spot market price, and at the retail market end the distribution companies handles the settlement by determining the actual consumption and the retail supplier. Still gross settlement between the market participants as in bilateral contracts and the net settlement with system operator involvement as in pool system can provide a more robust financial settlement. The physical dispatch settlement can be done with the help of proper banking arrangements between the states.

Stipulated Tariff

For regulated consumers, as in case of low paying capacity consumers, social obligations stipulate that the consumers be given some concession in their energy bills. This practice of concessions to low paying capacity consumers is carried out in all developed countries like UK, USA, etc. The tariff for the same should be determined by the appropriate commission and should set guidelines for computing the regulated retail price for these customers. The consumers switching to other suppliers are charged as per the rates of the suppliers. The tariff for regulated consumers (includes non-switching consumers) should be set by the commission as per the sum of prices at different levels.

Treatment of Subsidies

It is observed that subsidies never reach the indented customers. As long as the subsidies are deferred it is better for the competition in the market. There are various options to deal with the issue of subsidies prevailing currently. For an energy deficient like India, with insufficient electrification, the policies should equally focus on connecting those who are not connected and providing the choices to those who are already connected.

10. Conclusion

The Indian power distribution sector is major bottleneck, standing as it is at the worst stage of financial lacuna. At present, the country's Discoms have accumulated losses of more than Rs 2 lakh crores on their balance sheets, apart from significant regulatory assets that have not yet been passed on to consumers in the form of a tariff hike. In this scenario, one compelling reform that can be undertaken is the segregation of Distribution (Wire) business from Retail Supply, and gradual opening up of the Retail Supply business to competition.

The last stage or the logical end point of reforms is Full retail competition, because it avoids the potential conflicts and inefficiencies of the competitive wholesale electricity market and that can be established while implementing segregation of wire and content business. The pressure for increased efficiency and competitive pricing comes directly from the end-users and not from regulated distribution companies. Retail competition (Segregation of Wire & Content) is guided by the inherent market incentive to provide consumers with services that they are willing to pay for.

We have seen the generic model from vertically integrated to unbundled, full competition model. However, an efficient competition in the market cannot be created simply by restructuring the monopoly entities into unbundled entities and telling them to go forth and compete; an efficient central market must be created first. A matured wholesale market is the basic requirement for the implementation of retail competition. A forward approach to real competition in most situations is to start by focusing on the wholesale market that will be required before extensive competition can be compatible with the reasonable efficiency.

Competition in the power sector is at the supply and demand end i.e. at the generator end and the retail supply end. Competition in generation is normally reflected in wholesale market prices, while in distribution it is reflected in the retail tariffs. Thus, it is equally important for the regulators to keep a market vigil and impede any integration of generators or retailers to keep the abuse of market power away. It has been seen in the study that the vertical integration of utilities, whether it is Generation and Supply business or Distribution and Supply business will obstruct the very idea of implementing retail competition in the sector.

It is difficult to figure out the largest potential benefits from the retail competition are difficult to expect at development stage, and requires a long time frame. These results

primarily from stranded cost recovery, time lags in new generation capacity investments, and challenges of successfully implementing price-demand response at retail level. The consensus is to promote competition in the wholesale and retail by deregulating the generation and opening the retail markets, and continuing with the regulation based on performance of the transmission and distribution networks business.

In this study report, various learning's from international experiences for segregation of wire& content business, successful model like US and resounding model like California, other small inference generated from countries like Spain, Germany, Italy, and Argentina. This experience's provided us the various pertaining challenges during & after segregation of wire and content business which leads to generate suggestions/ recommendation. Finally, this study attempts to find out various risk, challenges associated in the final stage of reform (Segregation of Wire & Content business, full retail competition). This issue should be addressed before last stage of reforms introduced in the Indian Power Sector.

Therefore, the high time has come to introduce segregation of wire & content business in power distribution, but regulator, policymaker, govt. bodies and private players must address and overcome: risk and challenges, before implementing such a significant reform measure in Indian power sector.

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