

CHAPTER 3

LITERATURE REVIEW

Literature Review plan includes broad domain areas (i) theoretical under pinning of Evolution of Regulatory Regime in several countries. (ii) Status and issue challenges of OA in Indian states choosing UK for bench marking and evolving power market competition, (iii) Developing OA framework in electricity distribution sector.

First category review reveals that these are instruments of policy and practice which have catalyzed restructuring of sector leading to the evolution Regulatory Regime.

3.1. THEORETICAL UNDERPINNING EVOLUTION OF THE REGULATORY REGIME, RESTRUCTURING AND DEREGULATION GLOBALLY

Salient features of such evolution are:

- 1) Contractual relationship is shared by franchising authority and franchise holder.
- 2) Limited validity contract.
- 3) Franchise holder uses the assets without assuming ownership rights.
- 4) Concessionaire is responsible for all facilities.
- 5) Franchisee assumes the risk for ensuring appropriate service and maintaining facilities in good condition.
- 6) Remuneration is according to a contractually agreed tariff collected from customers.
- 7) Reduces the regulatory capture and political interference.
- 8) Encourages productive efficiency, low cost as well as reasonable returns.
- 9) Sets competition for franchise bids.
- 10) Franchise encourages cost for ser quality standard.

Studying political economic arguments of Electricity and Telecom on relationship between liberalization internationalization as applicable in E.U. It is evident that incumbents exposed to domestic liberalization could internationalize most. Monopolistic rents could finance internationalization if liberalization was restricted. Hypothesis that National context will decide the course in other countries- is proved using co-relation and Cluster analysis. (Bhattacharya, 2011) According to S.K. Chatterjee and A. Kumar the lack of uptake of open access amongst consumers can be directed as a result of three factors namely, economic, regulatory and governance. The cost plus and bidding regime brought down utility tariff manifold in the last decade. However with the financial viability of utilities at stake there has been a tug of war with making OA less economically attractive consumers with pancaking open access charges. This brings in aspect of the regulatory environment under which contentious charges like the CSS have been levied across states making it almost impossible for OA to gain traction, especially in states like Tamil Nadu. (Chatterjee and Kumar, 2012)

Keeping in mind the heterogeneity of Indian conditions Examples cited by the authors are very useful while implementing OA reforms in distribution sector in India. It is felt that there is no single fit solution for a country or a State. We have some times as many as 50 user categories in a single state, X-subsidy is another challenge. Bhattacharyya suggested, if regulated by a practicable partial price-cap, the network operator may enforce monopolistic access charges in certain market segments. Access charges in other segments may be lowered strategically and may even be cross-subsidized. Christoph Riechmann fails to give a road map for the reforms in competitive retail supply sector. His Model has limitations because it discusses competition from the supplier perspective only but not for retail consumers. Western countries started electric reforms in 1990s. According to Benard Tenenbaum, Reinier Lock and Jim Barker, the privatization was the most important economical, political phenomenon of the decade. Argentina was one of the first countries in the world to implement a comprehensive reform in electricity sector. Among developing countries only Chile has had a comparably comprehensive and

successful reform. After Chile and Argentina many countries of the world also implemented the successful model of reforms in their respective markets. Pollitt's intensive research on the reforms in Power Sector of Argentina has lessons for India. The study of competition in retail sector at consumer level in India has remained untouched. It is proposed to limit the in-depth research to Benchmarking of Indian distribution through OA vis-a-vis regulatory framework of UK only, although international scenario of competition in distribution sector in Latin America has been studied. The variables thus identified will be deployed for achieving Research Objective 2 (To identify the critical factors affecting the performance of OA in Indian electricity distribution sector).

3.2. DISTRIBUTION REFORMS IN INDIAN STATES, IDENTIFYING FACTORS AFFECTING PERFORMANCE OF OA.

Typically, transmission constraints are cited as the reason for denying OA even though the consumer was already connected and the load was being served by distribution utility. Distribution utilities, in concert with the transmission utility, are not keen on allowing competition. Even when allowed, such consumers could not avail OA allowed due to various reasons such as reluctance of SLDC/STU in wheeling power. (JERC, 2010)

Critical Issues to be addressed in distribution are:

The major challenges experienced in distribution scenario are:-

- High AT & C losses
- Low customer satisfaction
- Obsolete technologies
- Massive load shedding
- Frequent power failure
- Unacceptable safety standards

The Advanced Metering Initiative (AMI) has the objectives of addressing number of these problems like reducing AT & C losses, load curtailment, voltage control and improved power access through demand side management, outage management, peak load management, power quality management and micro grid installations. (AMI, 2010)

The case of Bhiwandi can be taken as a learning experience. The Maharashtra State Electricity Distribution Company Limited (MSEDCL), in an attempt to bridge the growing deficit, decided to introduce private expertise along with their funds by way of forming a distribution franchisee in this textile hub. The Bhiwandi Electricity Distribution Franchisee (BEDF) was formed, such that it was a PPP venture between the State of Maharashtra through MSEDCL and the private partner, Torrent Power, AEC Limited (TPL). This model demonstrated substantial potential to rapidly reduce AT&C losses, took care of the interests of the stakeholders as well.

Determination of wheeling charges essentially requires the bifurcation of accounts of the utility into “wheeling” and “retail supply” business. The assets in the books of accounts need to be allocated to each voltage level of supply and apportioned for usage at each voltage level to arrive at the voltage wise wheeling charges. A consumer availing OA and receiving supply of electricity from a person (or an entity) other than the distribution licensee of his area of supply shall pay to the distribution licensee an additional surcharge, in addition to wheeling charges and cross-subsidy surcharge, to meet the fixed cost of such distribution licensee arising out of his obligation to supply as provided under sub-section (4) of section 42 of the Act. (Roy Deepto, 2011)

A progressive implementation will help the stakeholders to make the transition to facilitate the change to competitive market from a regulated one. The retail choice helps the customers to gain the advantage of competition and avoiding cross subsidies. A few states have started working on Retail competition model. Mumbai has multiple licensees of BSES and Tata Power, it is a baby step towards achieving full-fledged roll-out of competition in retail sale. In

Orissa, Power Grid has approached the OERC for distribution licensee and then they will develop the distribution infrastructure for Central Electricity Supply Utility of Odisha (CESU) and open it for market players. OA has its genesis in the concept of the difference between electricity generation as a product via-a-vis its transmission and distribution as a service. (CESU, 2010)

3.3. CHALLENGES TO OA DISTRIBUTION AND FRAMEWORK DEVELOPMENT

Literature under this category includes current experiences as observed by experts from India and abroad.

According to Anil Kumar, there are two contradicting perceptions that took shape with the advent of OA. First and foremost competition would ensure supply of economic power to consumers, while utilities must also meet the needs of agricultural consumers, at the cost of subsidizing while cross subsidizing the HT consumers. Therein lay the bowl of contention as, if such HT consumers leave the purview of the utility, the utility would lose out on its cross subsidizing agent, which defeats the purpose of a HT consumer moving to OA, as he is indifferent between the payment of cross subsidy to the Utility as a Non OA consumer and paying a CSS as an OA consumer. The author states that in such a situation, the ideal solution is one in which the consumer has the choice to come out of competition in a market mechanism that has efficient rules and no asymmetry in information in the presence of a regulator to monitor. This would provide the correct incentives to the both stakeholders- consumers and investors. (A. Kumar, 2015)

Gujarat State had issued orders (to favour the local power generators) putting restrictions on local consumers from buying power from the suppliers outside the State. Karnataka State Government imposed embargo on the export of power from the state, forcing generators to confine the sale to consumers located within the State. Both the states apparently resorted to action going against the spirit of the provisions of the EA, 2003. In Gujarat, consumers are

therefore unable to procure power from a producer of another state, willing to supply power at a cheaper rate, thus, forcing consumers to buy from the incumbent (local) utility at a higher price. The consumer thus lost out on both tariff and hedging. (RE Connect, 2014).

The distribution company would never like to lose its high-paying capacity consumers. It would be relevant to analyze the impact, the exit of a high-end consumer might have on the distribution company. CERC, meanwhile modified its short-term OA regulations in May 2009 so that the SLDC would examine only two criteria while processing a request for OA i.e. the availability of suitable metering-energy accounting infrastructure and availability of network capacity required and nothing else status of Enforcement of OA Regulations. (JERC, 2013)

Recently, Himachal Pradesh, Gujarat and Rajasthan came out with their respective regulations for the fiscal year of 2016-17 in which the commission has accepted the respective utilities to levy a monthly additional surcharge on account of various reasons like stranded power. The additional surcharge on an average for the three states is Rs.0.66/kWh, Rs. 0.46/kWh and Rs. 1/kWh respectively. The additional surcharge cannot be exempted from being charged on RE sources as well. Hence OA users have no option but to pay this additional charge on top of the rest of OA charges. (Reconnect Energy, 2016)

At present, consumer is compelled to buy power from local discom, while several generating companies (Gencos) have surplus power and can supply at lower price. Artificial barriers are being created in the flow of electricity across the state boundaries. The law envisages introduction of OA distribution with due consideration of operational constraints and cross subsidy between consumer categories. EA, 2003 provides choice to supply electricity through OA or multi license system but the consumer is denied the alternatives. (Pandey and Morris, 2009).

The Maharashtra Open Access Regulations clearly pose the framework for partial open access in which in a consumer have contract demands of 500kW,

he can take 300kW from the utility and 200kW from the open market through a bilateral transactions. In case of contingencies when utility is unable to supply power, then the consumer would always have the choice to go for a collective transaction. (MERC, 2015)

Despite the efforts made by the Commission to encourage industrial and commercial users to sign, long term, medium and short term open access contracts, a proposal by the CERC to increase transmission charges by 35% can definitely be detrimental for the mechanism. The draft regulations on inter-state transmission charges and losses proposed an increase of 35% in short term and 25% hike in medium term transactions. This implies that the Commission is trying to encourage the signing of longer bilateral contracts of periods greater than a year to ensure more efficient planning of scheduling. (Business Standard, 2016)

Consumer ends up paying higher rates and this limits his ability to hedge if a consumer buys from a group of sources-utility, power exchanges and captive sources. The appropriate government is empowered to specify that a generating company shall, in extraordinary circumstances, operate and maintain any generating station in accordance with its directions in terms of Section 11 of EA, (Business Standard, 2013)

Telangana in 2016 announced a cross subsidy surcharge to be levied voltage wise. Prior to this, no CSS was applicable till 2014-15. This had greatly affected the power market. However, the commission has created concessions for solar power developers who partake in OA within the state. The most prominent concession is that of 100% exemption from CSS. (Reconnect Energy, 2016)

Section 11, of the Electricity Act 2003 states that individual states can direct generating stations within the boundaries of the state on the account of shortage of power. (Power Watch India, 2015) However, given the surplus power that is being currently backed down and resulting in greater amounts of stranded power, Section 11 stands to be amended. This stranded power leads

to petitions for additional surcharge in many states like Rajasthan and Gujarat. This further reduces the competitiveness of open access transactions in comparison to conventional power utilities. (RERC, 2016)

People Republic of China has emerged a massive manufacturing hub riding on cheap and reliable power initially starting from a command and control system.

The Centre waived inter-state transmission charges and losses on transmission of electricity from solar and wind plants implying greater focus on Open Access concessions for renewable energy sector. This would not only make RE competitive but also boost the focus on Open Access. (Business Standard, 2016)

Less than thirty trading licensees (out of the existing forty licensees) are trading on power exchanges. A few traders are controlling major part of the power trading, so in effect, there is oligopoly and a very little competition. It is experienced that power may be surplus in one state but deficient in other state at the same time of the day. But power is not being exported/imported freely. The status report on electricity market as emerging after ten years of operation of EA, 2003 can be summarized as follows:

Our entire research study was based on the assumption that OA has been a nation-wide failure. This is because even in the few states that it was implemented, it is facing problems of stagnancy (in Rajasthan) or excessive state interference (in Maharashtra) and so on. Section 11 of EA has proved spoiler for the sector at time.

Appropriate Government may specify that a generating company shall, in extraordinary circumstances operate and maintain any generating station in accordance with the directions of that Government.

Explanation:- For the purposes of this section, the expression "extraordinary circumstances" means circumstances arising out of threat to security of the

State, public order or a natural calamity or such other circumstances arising in the public interest.

India could not attract FDI due to its haphazard reforms as against orderly model of Singapore and Latin America. Infrastructure development requires long gestation, risk portfolio, fund raising matching project progress, no short term repayment obligation, so FDI helps private participation (OECD, 2002)

A decade long analysis of EA shows that a discom sector high losses i.e. 0.7% of GDP are equal to 17% (2011) of country's gross fiscal deficit. Multiplicity of institutions have caused diffused accountability, non-commercial orientation, insufficient regulatory enforcement. (ESMAP, 2009).

OA is a mechanism that allows generators to sell power to the highest bidders while consumers can source their needs from the most economic sellers. This provision was made for private generators and bulk consumers. However there have been a lot of obstacles to its successful implementation. The individual state electricity regulatory commissions must be proactive to ensure that the usual obstacles can be overcome. One of the biggest problems is that of the reluctance of distribution companies to come under the folds of OA. Perceived energy demand deficit forces distribution utilities to set many barriers to the implementation of OA. Also one major reason why utilities are wary of OA, are the anticipated losses in cross subsidy to force Regulators to decide high OA charges. The main problems in the implementation of OA arise due to the reluctance of State Electricity Regulatory Commissions in allowing sale of power by Captive Power Producer (CPPs) out of the state due to energy shortages in the states, lack of independence of state load dispatch centers for scheduling, and lack of transmission capacity. (CUTS, 2016)

The problem that we have to address is that of non-successful implementation of OA in the distribution sector. This is of utmost importance as distribution companies are suffering from high levels of Aggregate Technical and Commercial losses. The aspect of high OA charges, high cross subsidies and lack of separation of power supply and wire business can be ascertained as the

main reasons why OA has so far failed. Also state governments are often reluctant to allow competition as captive power producers would have the incentive to export power, in spite of power shortages in the respective states. There are problems of transmission congestion and competitive neutrality. (SIR, 2012)

The right path to implementation of OA would help in introducing efficient retail competition in the distribution sector that would ensure more reliable power for the masses. The study analyses the various apprehension of the sector, in order to understand the key problem areas of OA. The changes like RPO on co-gen, competitive bidding solar RPO can definitely set up new capacities and impact cross subsidy calculation. (NTP, 2016)

OA refers to the possibility for any party selling or buying electricity to make use of transmission and distribution systems, regardless of who owns and operates the power grid, as long as that party pays the costs of using those systems and is subject to transparently defined system security constraints. The flexibility permitted by OA allows for multiple and diverse power supply contracts and contributes to better utilization of resources. Experience of developing and developed countries, shows that a quarter of total consumption in 2010 in Brazil was transacted in the free market. (ESMAP, 2013)

Competition is the cornerstone of EA six main themes are :-

- Reorganization of the state owned vertically integrated electricity boards;
- De licensing of power generation to enable higher investments;
- Trading and market development;
- Tariff and subsidies;
- Consumer interest; and
- OA

The Power industry has for long continued to stay a monopoly. It has been an onus for a generating system to sign a BPTA (Bulk Purchase Transmission

Agreement) and to obey to connectivity settings of the Transmission Corporation. OA in this framework awards right to the generating corporation, the non-discriminatory use of Transmission & Distribution lines therefore reducing the monopolistic feature of the electricity market and encouraging competition at numerous level of Power Industry. Competition in distribution sector is created on the notion of multiple licensees in the identical area so that consumers have an option to decide to source their need.

EA purposes to advance a full-grown market of electricity and as such OA is one of the numerous tools to alter & develop a modest market to reduce its monopolistic nature. Expansion of Competitive market will result in modest prices which will clearly be less than monopolistic price. OA directed competitive setting can increase investment feelings in the sector and thus it can aid network consolidation for better clearing and distribution. Power sector has been currently flawed by ageing and insufficient–infrastructure. If competitive companies actively participate in the sector then infrastructure and network connectivity can be established as well as reinforced. (FOR, 2013)

3.4. DISCUSSION ON LITERATURE REVIEW

Extensive Literature review has been done aligned with themes of Research. Competition means attracting consumers in the presence of rival service providers. In 1991, a beginning was made in India to transform the monopolistic Generation system into a rudimentary competitive system. Later EA, 2003 superseded the existent electricity reforms. Many states like Karnataka, Tamil Nadu, Chhattisgarh and Orissa have been violating OA regulations and have barred the entry of private utilities, captive plants from selling the energy to other states. This has resulted in discouraging the potential investors and has affected the competition market. It was observed by CERC and Planning Commission that the poor status of competition in the power sector was because of regulators¹ impediments, unconsidered interest of end users and lack of opportunity for private producer to sell power to other states.(WB, 2014)

We can clearly observe that out of 23 selected States, 21 States have enforced regulations on OA and specified surcharges and wheeling charges. (FOR, 2012.)

Despite all efforts of stakeholders for proper implementation of OA in electricity market, current status of OA is largely seen as stagnant.

As far as the current scenario of implementing OA is concerned, as State utilities are trapped in the complication of over-dependence on the industrial consumers as that may give rise to financial burden for State Utilities. This led to high charges levied as OA charges. This in turn gives rise to various technical and transmission issues; hence a question mark is put on viability of purchase of electricity from OA market. The key objective of the EA, 2003 was to introduce competition in electricity sector, but this has hardly helped the consumers to use the OA Facility. Other distinct problems are the failure of State Load Dispatch Centre (SLDCs) to act as an independent system operator; denying OA to protect State Electricity Board (SEBs) from competition. It is very difficult for SEBs to give up their monopoly power as they may lose their bulk electricity consuming customers. The power demand is greater than the power supply in our country, so regulated prices of electricity, may erode the extent of saving in power purchase cost that are envisaged through OA. One of the important issues in the implementation of OA is unavailability of adequate transmission and distribution infrastructure that leads to congestion in network.

Impact of implementation of OA on market will be

- Greater power flow across country or region.
- Diversification in generator supply through small distributed generation.
- Improved reliability of power supply for consumers.
- Potential credit enhancement for distribution companies.
- Increased competition for generators.(IEE, 2015)

Metro cities like Delhi, Mumbai and Kolkata have experienced limited success in privatization in the electricity market.

Delhi model is private regulated monopolized discom viz-a-viz retail competitive model of U.S. and U.K.

We have taken the case of Mumbai to describe parallel distribution scenario:

Currently Mumbai has four distribution companies namely-

- Brihan Mumbai Electricity Supply and Transport Undertaking (BEST)
- Reliance Infrastructure (REL) Ltd. (Distribution) (R Infra-D) previously known as BSES
- Tata Power Company Ltd. (Distribution) (TPC-D), and
- Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL)

Hon'ble Supreme Court in June, 2008 passed a judgment that paved the way for Tata power to supply electricity to the retail consumers, hitherto, being served by Reliance. Hon'ble Court also observed that the electricity supply to the consumers could be provided through R-Infra installed distribution infrastructure. Service delivery has improved significantly since then as R-infra consumers had been demanding to access supply from Tata power due to lower tariff.

OA is distant dream may be because of transmission bottlenecks or political will though 40% of the bulk power is traded through power exchanges. GDP is reduced by 0.4% because of outages and loss of market. (FICCI, 2015)

There has been a marked change in the cross subsidy surcharges across states in the last few years inspecting OA market. In 2015-16, states of Andhra Pradesh, Telangana and Madhya Pradesh, increased their Cross Subsidy Service (CSS) charges on industrial units. Andhra Pradesh and Telangana increased it from nil to Rs.2.23 and Rs.1.42 respectively. Madhya Pradesh increased from it from Rs.0.48 to Rs.2.18, an increase of 350%. These three States account for approximately 20% of the total trading that takes place in

Power Exchanges. Haryana is an example of what may happen with the steep rise in CSS. It had a CSS of Rs.0.53, increased to Rs.2.02 in 2013, that resulted in traded volume to fall from 160 MUs to 86 MUs.

Author gives a wonderful bunch of information about the progress made by the electricity sector in India, but it has to be said that does not lead to any contributor to literature on retail supply competition for consumer choice in India. (Shukla, 2011)

The main objectives of our research are:

- To analyze the problems in OA in relation to the distribution sector.
- To identify the parameters that can be termed as 'OA Enablers'.
- To suggest an alternative framework that could result in implementing OA.

If OA is implemented, consumer will be gainer as he will have choice of supplier. Genco will be happier as it will be assured of timely payment. Discom, however, fears losing high paying customers due to irrational tariff. Regulator does not have jurisdiction over >1MW consumers. There is need to address the inconsistencies and constraints across the states. (Infraline, 2013)

Chile has emerged as the words pioneer in reforming electricity markets there is 100% private ownership in generation, transmission as well as distribution. Transmission and distribution are regulated monopoly while discoms serve both regulated and de-regulated customers. Market serves small customers through retail supply between generation and discoms. Large consumers enter into supply contracts with generators or discoms. Wholesale market has spot and contract deals. The power market is one of the best as indicated through high employee productivity, service quality and continuing low distribution losses upto 5%, much better than many OECD countries Chilectra sales increase 04 times, consumers 70% while reducing the man power from 2600 to 700 between 1987 to 2011.

UK became the second country after Chile to allow private sector participation in power sector. Unbundling led to creation of pooled competitive market in generation and retail (non-monopolistic). (Performance-based Regulation PBR) were put in place as incentive mechanism for ensuring fare pricing and service quality of natural monopolies. State monopoly gave way to M&A during 1990s presently there are 12 regional distribution networks and 01 transmission company in England and Wales. Scotland still has vertically integrated transmission and distribution. Reforms have led to health power market, lower overall tariffs and improved operational and technical performance.

In India, there are implementation issues at distribution levels due to lack of incentives and conflict of interest. EA, 2003 strongly emphasizes OA and provides for independent SLDC, parallel license. SLDC have not been fair and have sided with State Governments when section 11 was invoked in Tamilnadu, Karnataka and Maharashtra. High charges are imposed in Tamilnadu, West Bengal and Punjab, if consumer opts for alternative supplier. Wholesale transaction through power exchanges, are largely for captive use.

Although, international scenario of competition in distribution sector in Latin America has been studied, Benchmarking of Indian distribution through OA vis-a-vis regulatory framework of UK has been probed in depth. The comparative study covers the following areas –

1. Cost Reflective Tariff.
2. Network Structure- Separation of content and carriage.
3. Competition amongst suppliers.
4. Periodicity of Tariff Revision.
5. Unbundling of Supply chain.
6. Developed Wholesale Market.

7. Dynamic Retail Market.
8. Independence of System Operator.
9. OA to every consumer irrespective of load.
10. Wheeling charges.
11. Loss Reduction Mechanism.

In India, wire network and supply of electricity are owned by a single entity distribution company. Whereas in UK, distribution network operator (DNO) for a service area are separate entities and are different from electricity suppliers, i.e., there is separation of content and carriage. In India, the OA policy in practice is theoretically available only for bulk consumers, i.e. more than 1 MW. On the other hand, UK offers choice to retail customers. Any individual customer can access electricity supply from different competing companies that come under ICPs (Independent Connection Providers) and IDNOs.

It is evident from analysis that there are research gaps about evolutionary process of electricity reforms in India when compared with Chile, USA, UK and Argentina. While England has acquired over 30 years of regulatory experience, India has regulations only a decade older.

Existing literature does not have a clear cut benchmarking study of India with United Kingdom on implementation of OA in distribution sector. Brazilian experience of separation of high paying customers has also been studied and is relevant. Variables Research gaps identified after benchmark study are

- Under Pricing of Tariff.
- Wholesale market model.
- Voltage wise losses.
- Success and failure in Latin America.
- Unbundling of utilities,

- Path of Chilean privatization
- Entry of IPPs
- Smart grid framework.
- Separation of network in UK.
- Network monopoly could create entry barriers.
- Establishment of regulators.
- Network/wheeling charges.
- Periodicity revision of cost reflective tariff.
- Low domestic/agricultural tariff.
- Political determination of electricity price
- Privatization of utilities more than one licenses in one service area.
- Regulatory certainty.
- Choice of supplier,
- Independence of network operator
- Capacity building of regulators
- Tariff without cross subsidy
- Carriage and content cost be separately determined
- High industrial/ commercial tariff,
- High cross subsidy Retail surcharge.
- Low rural electrification,
- Market mechanism,
- Fixation of OA charges
- Long term firm power contract.

Solution lies in creating double track electricity market – subsidy for poor, reliable power supply for industry through competitive tariff. OA has not been popular. Detailed research is long overdue. Impact of – Long term PPAs, stranded cost per OA consumers are the areas need in depth probe. Limited Validity of the reforms has been tested in Indian context. Detailed study on this is not available. At Present, OA covers only consumers having capacity more than 1 MW. OA should be open to retail customers in long run. (IPS, 2014).

Independence of SLDC is a pre-requisite for OA competition. Merchant power is pricy and reforms in supply and distribution can make cost effective power supply to retail customers. Systematic bench-marking study for identification of variables will help in preparing questionnaire, data collection and then suggesting a policy framework. Reforms like separation of content and carriage have not been studied in Indian context. Wholesale market platforms have been in place for now more than 8 years but retail competition is a matter of further research.

Theoretical Premise

As per restructuring options under competition in the energy market given by Tenenbaunaetal, wholesale competition has got 3 level options- 1. Price based pool, 2. Cost based pool, 3. OA.

The theory of competition implies the futility of cartel like monopolistic market structures. A market for a commodity can be called truly competitive only when there are a large number of sellers; large number of buyers; minimal regulation on entry and exit of firms and also complete information regarding actions of various market players. In the electricity market the uniqueness of the commodity in question, is the reason digressions from the aforementioned four features of perfect competition are seen. The imperfect knowledge distribution amongst all the different stakeholders and the presence of substantive amounts of regulation in the power market has resulted in incorrect market directions. Wholesale competition through OA is a case which is in Indian Power Sector, which means liberalizing entry to the market by providing access to the transmission and distribution network. Open Access is the key that can help in achieving the multi-pronged theory of competition in the power market