

Competition and Choice in Electricity Distribution in India

Daljit Singh

Independent Researcher,
Energy Policy

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ABSTRACT

Introduction of competition and providing consumers choice of supplier have been two of the main aims of reform of the electricity sector in India. This paper examines the experience with three measures to fulfill these aims: (1) open-access to the transmission and distribution system; (2) allowing multiple distribution licensees in an area; and (3) proposed Electricity Act Amendments (EAA) for separation of carriage and content in the distribution system for electricity. Open access and multiple distribution licenses have not been very successful for two main reasons. First, there is a mismatch between the perspective of the Centre and the States; the Centre has a long-term perspective focused on competition and efficiency while the States are concerned about more immediate issues of protecting the discoms' revenues and maintaining affordable tariffs. Second, incomplete and/or faulty legislation and regulations have resulted in ad-hoc rule-making and the Courts having to step in to fill the legislative and regulatory gaps. Two particularly significant examples are: (1) provision in the Electricity Act allowing multiple distribution licensees in the same area that has led to duplication of resources and high tariffs for consumers in Mumbai; and (2) the lack of comprehensive regulations defining the relationship between discoms and open access consumers that has led to difficulties for discoms in managing load swings and in power procurement planning; development of model regulations would be useful. The paper also identifies difficulties in achieving retail competition due to fragmented fuel markets, and suggests ensuring effective wholesale competition first. The proposed framework for separation of carriage and content in EAA is very cumbersome and may not achieve the stated goals. In addition, there are concerns about the impact on small consumers and the finances of the provider of last resort. The implications of EAA should be thought through more thoroughly before implementation.

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INTRODUCTION

Since the passage of The Electricity Act of 2003 (EAct), introduction of competition has been one of the main aims of reform of the electricity sector in India. This focus on competition has been accompanied more recently by talk of providing consumers choice in their selection of electricity supplier, with even Prime Minister Modi proclaiming that consumers would be able to choose their electricity supplier just as they were able to select their provider of telecom services (NDI, 2015). In this paper, we examine the origin of, motivation for, and experience with the push for competition and choice of supplier. The paper focuses on three measures to introduce greater competition and choice in the sector:

- (1) allowing open-access (OA) to the transmission and distribution system for use by consumers and generators;
- (2) allowing more than one distribution licensee (also known as a parallel distribution license) in an area; and
- (3) Electricity Act Amendments (2014) introduced in the Lok Sabha and that include steps to introduce choice of supplier through separation of carriage and content in the distribution system for electricity.

HISTORICAL BACKGROUND

Around 1991, power generation was opened up to the private sector. Initially, there was great enthusiasm from the independent power producers (IPPs) but it was quickly dampened by the recognition that the State Electricity Boards (SEBs) were in poor financial health and their ability to pay for power was questionable. In turn, this led to the recognition that addressing the financial health of the distribution sector was key to reforming the power sector at large. Consequently, in 1993 a committee was set up by the National Development Council to look into the matter. The committee included the Chief Ministers (CMs) of six states, the Power Minister and the Finance Minister. The Committee recommended tariff-setting by regional tariff boards; privatization of distribution in urban areas; a uniform India-wide tariff for agriculture; and transparent subsidies to SEBs for losses. (Kumar and Chatterjee, 2012:3)

The NDC Committee was followed by the development of a Common Minimum National Action Plan for Power (CMNPP) at a conference of Chief Ministers in 1996. The CMNPP discussed the setting up of Electricity Regulatory Commissions and limiting the amount of subsidy given through tariffs. It recommended tariffs for all consumers that were at least 50 per cent of the cost of supply, with this target for agricultural consumers being met over three years starting with tariffs of at least 50 paise per kWh. While the first phase of reforms focused on generation and IPPs, the CMNPP is said to have ushered in the second phase of reforms with a focus on distribution. (Kumar and Chatterjee, 2012:3-4)

During the period 1996-98, three states (Odisha, Haryana and AP) initiated reforms and established Electricity Regulatory Commissions (ERCs). In 1998 the ERC Act was passed that established the Central Electricity Regulatory Commission (CERC) and laid a framework for the establishment of State Electricity Regulatory Commissions, (SERCs) but allowed states discretion to establish SERCs.

As Kumar and Chatterjee (2012) contend, the deliberations around the development of the CMNPP show that there was an understanding among states and political parties of the need to limit subsidies, and that they “...could not afford to play politics around power sector issues.” Yet, there was no consensus around setting up ERCs. The Central Government used various incentives and penalties to persuade state governments to initiate reforms in the power sector and establish SERCs. This ambivalence of state governments toward power sector reform, in spite of an understanding of the urgency of the need for reform is a long-standing puzzle.



THE ELECTRICITY ACT OF 2003

By 2000, a need was felt in the country for a comprehensive legislation that would address issues in generation, transmission and distribution, and would promote competition, whilst being both investor and consumer friendly. Promotion of competition, rationalization of electricity tariffs and ensuring transparency about tariffs are some of the key aims of the EAct that are enunciated in its preamble.

Some of the features of the Act that relate to these objectives are:

- De-licensing of power generation, except for hydro-power generation
- Removal of consent requirements for setting up captive plants
- Allowing open access (OA) to the transmission and distribution system, enabling customers to obtain electricity from suppliers of their choice
- Rationalization of tariffs, and elimination of subsidies to facilitate greater reliance on the market for pricing, and hence competition.
- Promotion of competitive bidding for the supply of electricity
- Introduction of trading of electricity
- Allowing multiple distribution licensees in the same area

Amendments to EAct

Two sets of amendments were made to the EAct; one in 2004 and another in 2007. On issues related to competition and choice, the following amendments were made:

- OA for consumers with a load greater than 1 MW was to be provided within five years (i.e. by January 2009). No deadline for providing OA existed earlier. (2004 Amendments)
- Provisions for eliminating cross-subsidies were diluted, in that cross-subsidies had to only be “*progressively*” reduced (2007 Amendments).
- A minor change to the conditions for allowing parallel distribution license (2004 Amendments).

The first amendment listed above strengthened the move for OA while the second one has the effect of diluting the push for OA and competition. It is interesting to note that the Common Minimum Programme of the UPA government in 2004 had promised a review of the EAct to address the concerns of many states. The review took almost a year. Kumar and Chatterjee (2012:12) assert that the review resulted in the removal of the requirement to eliminate cross-subsidies. Further, they say that the review can be seen as either as a dilution of the resolve for sectoral reform or it can be seen as a broad-basing of support for reforms. They suggest that the review should be seen as the latter because there were no calls for repeal of the Act. Nevertheless, the lack of consensus among states on the issue of rationalization of tariffs and subsidies, which is seen as a critical requirement for improving the financial health of distribution companies should be kept in mind.

We now review in some detail the experience with three measures for enhancing competition in the sector: open access; multiple distribution licensees; and the proposed EAct amendments of 2014.

OPEN ACCESS

According to the EAct, non-discriminatory OA to the transmission system is to be provided to:

- (1) any licensee or generating company on the payment of transmission charges; and
- (2) any consumer when open access is permitted by the respective SERC on payment of transmission charges and a cross-subsidy surcharge as specified by the SERC (Sections 38, 39, and 40 of EAct).

SERCs are to develop a schedule to allow open access to consumers in their respective states in phases, and to introduce open access per that schedule (Section 42 of EAct). However, open access (OA) was to be allowed for any consumer having load greater than 1 MW by January 2009. Further, the surcharge and cross-subsidies are to be reduced progressively according to a trajectory to be specified by the respective SERC. OA is said to be “*the soul of the Electricity Act*”, and it is expected that by allowing choice of supplier to consumers it will lead to a vibrant and competitive market, that in turn, will encourage greater investment in the sector (Kumar and Chatterjee, 2012:189). For open access to the inter-state transmission system, CERC has developed two sets of regulations: one for short-term OA, and another for medium and long term OA (CERC, 2008; CERC, 2009). For the purpose of these regulations, short term is defined as up to one month; medium term between 3 months and 3 years; and long-term as between 12 and 25 years. The regulations describe the process for requesting OA and the rules for determining priority if there are conflicts between two or more requests for OA. Along similar lines, Forum of Regulators (FoR) has developed model regulations for open access to the intra-state transmission and distribution system (FoR, 2010). These model regulations have been used by states to establish open access regulations for their own intra-state system; see for example MERC (2016).

Status of OA

According to the Standing Committee on Energy, 27 SERCs have issued regulations for OA and allowed OA for consumers with loads greater than 1 MW. 23 of the 27 SERCs have specified transmission charges, wheeling charges and cross-subsidy surcharges for OA. Open access to the transmission system sought by generating stations has been granted in many cases, and has generally not been an issue of contention. However, regarding open access for end consumers, success has been limited and most observers of the sector express dissatisfaction (SCE, 2015; Kumar and Chatterjee, 2012:189). Until recently, there had been very few cases of open access for end consumers. Two major reasons were:

- (1) denial of OA by the state load dispatch centre (SLDC); and
- (2) high charges (cross-subsidy and other charges).¹

We discuss these in more detail later.

But recently there has been greater interest in seeking open access by consumers for two reasons:

- (1) surplus capacity in many regions has led to power being available in the market at low rates (Indian Express, 2016);
- (2) retail supply from renewable energy sources has become economically attractive because of reduction in prices for energy from renewable energy sources, and because cross-subsidy surcharge and other charges for supply from renewables are much lower in several states as compared to supply from conventional sources (PwC, 2015:9).

It is difficult to provide a quantitative assessment of how much these factors have affected the use of open access by end-consumers because data on open access is very difficult to obtain. However, based on the efforts of Prayas Energy Group, we are able to see the effect in one state - Maharashtra.² Table 1 shows a trend of increasing use of open access over the last few years, and in particular, over the last year.

Table 1. Energy Delivered through Open Access to End-Consumers in MSEDCL Service Territory

Year	FY12	FY13	FY14	FY15	FY16 (Upto Feb 16)
Total Open Access (million KWH)	865	3,750	4,469	4,441	5,707

Source: MSEDCL reply to Prayas regarding data gaps in MYT petition (MERC Case No. 48 of 2016)

¹ During periods of shortage, some states set the CSS to zero in order to encourage supply of power from outside the state. For example, during the period 2006-11, the CSS in Maharashtra was set at zero (MERC, 2011).

² Prayas has been advocating that data related to OA be collected by SERCs and made available on their websites (Prayas, 2016; 2013).

Just as in the earlier period, even now there is apprehension among distribution companies (discoms) over loss of revenue from open access. The story of open access seems to be one of a tussle between the Centre seeking to expand the use of open access by consumers, and the states and discoms trying to protect themselves from the loss of revenue that open access may bring.

Concerns of Main Players Regarding OA

Singh (2014) and Kumar and Chatterjee (2012:194-205) provide a comprehensive review of the perspectives of both the discoms and potential open access consumers. They identify several issues of concern pertaining to open access:

Discoms

Discoms generally have the following concerns

- **Loss of consumers with high-paying capacity:** High-consuming and paying consumers, who subsidize other consumers, mostly in the residential and agricultural category, may leave the grid. The cross subsidy surcharge (CSS) on open access consumers is supposed to compensate the discoms for this loss, and therefore discoms focus on the size of the CSS to ensure it compensates them fully.
- **Loss of load:** As discoms have procured most of their power through long-term PPAs, they continue to pay capacity charges for the power even after consumers leave for another supplier. The additional surcharge which is discussed later is expected to compensate them for this loss.
- **Difficulties with Load Management:** If large consumers opt for open access for short periods and shuttle back and forth between grid supply and a competitive supplier, it can become difficult for the discom to manage the load in an economically efficient manner. Swings in load could create periods where there is either too much capacity available or not enough.

Consumers

Consumers' interest in opting for open access can be dampened by the following factors:

- **No Escape from Discom Service Quality Issues:** Even for consumers opting for OA, the supply comes over the discom's distribution network. For consumers who are serviced by a discom with a poorly performing network, there is no relief from poor service quality. Not all OA consumers are on an independent feeder and therefore, they are subject to load shedding just like other consumers of the discom.
- **High Charges for OA:** In many states, cross-subsidy charge and other charges can be high, making the economic incentive for opting for OA weaker.
- **Generators' Preference for Bulk Sales:** Generators prefer to sell in bulk in blocks of 50-100 MW, while industrial loads are generally around 5 MW.
- **Difficulties in Coordination:** An OA transaction where the generator and consumer are in different regions involves dealing with two discoms, two state transmission utilities, two regional grids and the inter-regional grid. Consent for the transaction would be required from the two SLDCs and the two RLDCs. Having the generator and the consumer in the same regional grid could minimise these difficulties.

Denial of OA by the State Load Dispatch Centre (SLDC)

Over the years there have been many cases where the SLDCs have denied open access. There are 239 orders that pertain to the "denial of open access" on the CERC website, (www.cercind.gov.in). A review of some of them shows that there are a variety of reasons given by SLDCs to deny OA; some are accepted by the CERC, while others are rejected. While it was difficult to review all the cases, a review of some of them yielded the following reasons:

- The proposed transaction purportedly violates some government directive regarding export or import of power during periods of shortage and excess capacity respectively. (This issue is discussed in more detail in the next few paragraphs.)

- There is a complaint, usually from a state-owned company that the power being exported is actually covered in an existing PPA.

As an example, we look at a case from Delhi in 2009. New Delhi Power Limited (NDPL) (now Tata Power Delhi Distribution Ltd. (TPDDL)) requested access for exporting a certain quantum of power. The SLDC granted access but for a lower quantum of power. In explaining its actions, the SLDC said that there was an agreement in place that any surplus power held by a discom should be first offered to other discoms in Delhi, and only if not needed, could be sold to an entity outside. Further, the SLDC said that the Secretary (Power) had in a meeting said that priority should be given to domestic demand, and that the SLDC had taken that as a direction from the Government, and curtailed the export of power because it was needed to meet Delhi's demand.

In its ruling which rejected the SLDC's reasons, and fined it for violations of its regulations, CERC said that a SLDC has to allow an open access transaction if it fulfils two conditions: (1) adequate metering and accounting infrastructure; and (2) adequate transmission capacity. Other issues could not be used to reject a request for transfer of power under open access. (CERC, 2009)

State Governments Restricting Exports or Imports of Power

Some state governments are restricting in-state generators from exporting power or restricting consumers from importing power. Restriction on export of power is usually done when the state is short of power, and restriction on import of power is done when the state has a surplus of power. For imposing these restrictions, the state governments invoke Section 11 of EAct which states:

The 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.

Kumar and Chatterjee (2012:196) report that Karnataka issued the first such directive, and has been withdrawing and reimposing it from time to time. For example, in March 2014, the Karnataka government directed all generating companies to produce the maximum exportable electricity and supply it to the state grid at a tentative tariff of Rs. 5.50 per kWh subject to final tariff determination by KERC (KERC, 2014). The state had been facing a severe power shortage due to breakdowns at one of the generating units, underperformance of other plants and a drop in generation from wind. About 900 MW of load had to be shed at peak time and about 500 MW during the off-peak period (Power Line, 2014).

Around the same time, Gujarat restricted open access for short-term power purchases which were being used by industrial consumers to buy power from power exchanges. Industrial tariffs at the time were about Rs. 6 per kWh while power from the exchanges was available at about Rs. 4 per kWh. As a result about 1500 MW was being procured from out of the state while about 4000 MW was lying idle in the state due to excess capacity (Power Line, 2014).

Over time, many other states have put restrictions on exports or imports of power such as Tamil Nadu (TN), Odisha, AP and Rajasthan (Kumar and Chatterjee, 2012:196; SCE, 2015). CERC had issued several orders declaring that Section 11 cannot be used to restrict open access.

Karnataka between 2008 and 2009 serves as a useful case to understand the issues around such directives to limit imports or exports of power. At the time, Karnataka was facing an acute power shortage of 2300 MW (28 per cent of its demand), and therefore the Karnataka government directed all generating units in the state to supply to the State Grid and not export power through open access. Three entities (Renuka Sugars Ltd, a cogenerator; Reliance Energy Trading Ltd; and Global Energy Ltd) filed a petition at CERC regarding non-availability of open access. CERC issued an

order to the Karnataka SLDC to allow open access. The Government of Karnataka filed a petition at the Karnataka High Court asking it to quash the CERC order. The High Court quashed CERC orders and upheld the Karnataka Government's order. It stated (KT HC, 2010):

- All generating plants except for those partially or wholly owned by the Central Government located in the state, intra-state transmission, state grid, state transmission utility, and the SLDC were regulated by the SERC and the state government.
- The state government can give directions to all plants located in the state except those owned by the Central Government.
- OA is not an “*unbridled right*” for a generator to supply to a consumer of its choice that cannot be curtailed under any circumstances. OA meant no discrimination in access to the grid.
- In extraordinary circumstances, an order under Section 11 has an over-riding effect on orders passed by other authorities.

CERC has filed a special leave petition (SLP) in the Supreme Court and the matter is *sub-judice* (CERC, 2010).

Charges for Open Access

Cross Subsidy Surcharge (CSS)

When the EAct was being drafted, it was known that OA would be most economically attractive to commercial and industrial consumers whose tariffs were higher than the cost to serve them because these high paying consumers were subsidizing residential and agricultural consumers. So OA would lead to a loss of these subsidizing consumers and would affect discoms' finances, and thus discoms and state governments would resist OA. Therefore, the EAct included the CSS to compensate, at least to some extent for this loss of revenue. The surcharge and cross-subsidies are to be progressively reduced in a manner specified by the respective SERC.

Right from the beginning, there has been an effort to balance compensation to the discom and creating conditions conducive for competition. The National Electricity Policy of 2005 states:

The amount of surcharge and additional surcharge levied from consumers who are permitted open access should not become so onerous that it eliminates competition that is intended to be fostered in generation and supply of power directly to consumers through the provision of Open Access under Section 42(2) of the Act.

The National Tariff Policy of 2006, citing this provision, suggested a formula for calculating CSS as the difference between (1) the tariff charged to the consumer and (2) the marginal cost of power defined as the weighted average cost of power purchase for the top 5% of the power bought by the discom. Distribution charges and losses were of course, appropriately accounted for on both sides. It was also recommended that the CSS be brought down at a linear rate to 20% of its starting value over a 5 year period.

There were critiques that the marginal cost of supply resulted in a low CSS, and it was suggested that the average cost of supply be used instead. The recently revised National Tariff Policy of 2016 recommends the use of the average cost of supply. However, it does remove the influence of any costs that are for recovery of regulatory assets. Furthermore, it says that the CSS not be more than 20% of the tariff for the respective consumer category.

While the CSS varies across states, generally it has been quite high, and as discussed earlier has been a deterrent for consumers considering opting for OA. In spite of the advice in successive versions of the Tariff Policy to reduce the CSS over time, there has been reluctance by states to reduce CSS without reducing the actual cross-subsidy in the tariffs. In turn, it has been difficult to reduce cross-subsidies because cost of supply has increased.

The issue of an appropriate CSS is particularly difficult to resolve because as explained by Singh (2005) it would be difficult to fully compensate a discom for lost subsidizing revenue while simultaneously making OA economically attractive for a potential consumer. A similar argument is made by Kumar and Chatterjee (2012:201-202) where they point out that the cost of power in the market is generally higher than the average cost of power procurement by the discom, because the utility procurement is from mostly older contracts while power in the market is from newer plants which have a higher cost of generation on a per kWh basis. Under these conditions, if a discom is fully compensated for lost subsidizing revenue, the resulting cost to a potential OA customer will be higher. Therefore, OA is likely to be uneconomic if you also want to fully compensate a utility. More recently, with surplus generation in the country and hence lower prices for power at the exchanges, this scenario has changed and as discussed earlier, this has led to greater interest in OA.

Additional Surcharge

When a discom procures power for its consumers, the PPAs it enters into have a fixed and variable cost. When a consumer opts for supply from an alternative supplier, those fixed costs are no longer fully covered, and Section 42 (4) of the EAct provides for an additional surcharge to cover these fixed costs. The National Tariff Policy states that the additional surcharge, “...should become applicable only if it is conclusively demonstrated that the obligation of a licensee, in terms of existing power purchase commitments, has been and continues to be stranded, or there is an unavoidable obligation and incidence to bear fixed costs consequent to such a contract.” Recently, discoms have been asking for an additional surcharge on open access consumers and SERCs have been granting it. For example, GERC has allowed a rather modest surcharge of Rs. 0.42 per kWh (GERC, 2014) and in Maharashtra in its recent tariff petition, MSEDCL has proposed an additional surcharge which is considerably higher of Rs. 1.60 per kWh for 2016-17 (MSEDCL, 2016).

Mandatory OA

There has been some debate in the power sector about whether the EAct requires that consumers with a load greater than 1 MW are deemed to be open access consumers and therefore, whether the discom is obligated to provide them electricity at regulated rates. This issue was brought to the fore in November 2011, through a letter from the MoP (MoP, 2011). It stated that all consumers with a load greater than 1 MW were deemed open access consumers, and that regulators had no jurisdiction of fixing energy tariffs for such consumers. This statement was based on consultation with the Ministry of Law and Justice by MoP and an opinion from the Attorney General.

Section 86 (a) of EAct states that where open access has been permitted for a category of consumers the SERC shall determine only the wheeling charges and surcharge for that category. The Amendment to Section 42 made in 2004 made it mandatory for SERCs to allow open access for all consumers with a load greater than 1 MW by January 2009. MoP argued and the AG concurred that these two clauses in the EAct read together meant that OA was mandatory for all consumers greater than 1 MW. MoP further argued that the discom did not have an obligation to serve these consumers who were now OA consumers.

In 2012, FoR brought out a position paper on OA that dealt with this issue of mandatory OA (FoR, 2012). It discussed various other judgements on the same issues, as summarized in Table 2.

Table 2. Judgements on Mandatory OA

Year	Deciding Authority	OA Mandatory for Category Where OA Allowed	Obligation to Serve OA Consumers
08-06-2010	Solicitor General of India	No	Not discussed
07-12-2010	Attorney-General of India	No	Not discussed
31-03-2011	Attorney-General of India	Yes	Not discussed
11-07-2006	APTEL	No	Yes

There are two decisions by the AG because the Advisor to the Deputy Chairman of the Planning Commission sent a letter giving his reactions to the AG's decision of 07-12-2010, and drawing the AG's attention to his arguments. MoP's letter regarding mandatory OA could have had large consequences for discoms and their large customers (>1 MW), because it was not clear how discoms were to handle the huge decrease in their load, and for large consumers who would have to shop around for power when there was an overall shortage of power. Probably for this reason, most states resisted the idea of mandatory OA (SCE, 2015:83-84), and it seems the Government too is no longer actively promoting it.

These events regarding deemed/mandatory OA raise several questions:

- Why was it so relatively easy to have multiple understandings of EAct on this issue? How to reconcile these multiple interpretations?
- Who has the final say on the interpretation of an act: regulators, courts and appellate tribunals, or the government?
- With ambiguity in legislation, does it become easy for people to push for an interpretation that agrees with their position?
- If MoP's interpretation is accepted, then what guidelines are needed for discoms, consumers and regulators to deal with the consequences? How to reduce the difficulty for the new open access consumers to obtain electricity particularly in periods and/or areas of shortage? Should the discom continue to provide electricity to these consumers but at market rates? How should the market rates be determined? How should the additional revenue that the discoms get be treated?

Analysis

The concept of OA initially for large consumers envisioned in the EAct is actually retail competition for that class of consumers. Effective retail competition requires two main conditions: (1) open access to the transmission and distribution system; and (2) well defined rules that govern the relationship between the discom and the consumer.

The rules under (2) above would cover the following issues:

- What is the obligation to serve of the discom?
- Which entity would be the provider of last resort (PoLR), that is if and when the consumer's competitive supplier does not or cannot supply electricity?
- How would the tariffs for power delivered by PoLR be determined?
- Can a consumer who leaves the supply of the discom and elects to take supply from a competitive supplier come back to taking supply from the discom at regulated tariffs, and if so, when?

While the EAct has articulated in fair detail how access to the T&D system should be opened up, very little has been said about the issues regarding the relationship between the discom and a consumer who opts to take supply from a competitive supplier. These issues should have been taken up either in the EAct itself, or by the respective SERCs before OA for large consumers was even considered. Because that was not done, APTEL stepped in and decided some of these issues. But APTEL is not the appropriate forum for such decisions. In fact, such decisions should be preceded by adequate consultation with all stakeholders.

The danger of not clarifying these issues can be seen if we imagine what would have happened if the directive of MoP regarding mandatory OA for all consumers with a load greater than 1 MW had to be implemented. There was some discussion about whether the discom could then charge these customers mutually agreed upon rates that would not be regulated by the SERC. Questions arose about how the additional revenue generated by the discom would be handled. There were many other confounding issues.

As discussed above, one of the aspects of the relationship between a consumer who takes electricity from a competitive supplier and the discom is about when such a consumer can come back to utility regulated rates. A related question is whether short-term moves back and forth between the market and the discom's regulated tariffs should be discouraged or even eliminated. While short-term open access to the transmission and distribution system is desirable, short-term moves back and forth to the market by a consumer make resource procurement particularly difficult for discoms. We can already see discoms, particularly in states with no shortages or with excess generating capacity, petitioning the SERCs for an additional surcharge to cover the fixed costs of PPAs and generating units that become idle when a large consumer or a large number of consumers move out.

Therefore, rules need to be developed and implemented that would define the relationship between a discom and a consumer who wishes to obtain electricity from a competitive supplier. Such rules should specify clearly: (1) the extent and nature of the obligation on the part of the discom to serve such consumers; (2) how the discom is to procure power to serve these consumers if and when their respective competitive suppliers fail to provide them electricity; (3) who should pay for additional costs that the discom would incur to serve these consumers; (4) after how much time can a consumer that chooses a competitive supplier return to regulated utility rates if he chooses. We suggest that FoR develop model rules to address these rules after wide consultation with all stakeholders including competitive suppliers, representatives of discoms, and civil society representatives. SERCs should be encouraged to adopt these model rules.

MULTIPLE DISTRIBUTION LICENSEES IN SAME AREA

Section 14 of the EAct allows an SERC to grant a license to two or more entities for distribution of electricity through their own distribution network in the same geographical area. Furthermore, the EAct states that no entity that satisfies all the requirements for a license shall be refused a license on the ground that there already exists a distribution licensee in that area. This feature of the EAct is rather unusual because in almost every other country, distribution is treated as a natural monopoly. The US moved to making distribution a monopoly, mostly regulated except in cases of cooperatives and municipal utilities, because it was felt that the then existing system of multiple distributors was wasteful because of duplication of resources. Ironically, India has moved in the opposite direction: from distribution being a monopoly to allowing multiple distributors in the same area.

This provision was present in the 1910 Act and is taken from there. One of the reasons advanced for allowing multiple licensees was the assumption that a second licensee with its own network could provide service to areas where distribution networks were otherwise deficient or non-existent, such as in tribal or remote areas

Multiple Distribution Licensees in Mumbai

Mumbai is one of the few places that has operationalized having multiple distribution licensees in the same area. We spend some time discussing it here because it is a complicated story with many threads that has some sobering lessons for introduction of competition and choice in the power sector (Chitnis and Josey, 2014; Prayas, 2016a).

Mumbai has four distribution licensees: Reliance Infrastructure (RInfra); BEST; Maharashtra State Electricity Distribution Company Ltd (MSEDCL); and Tata Power Co – Distribution (TPC-D). The generation wing of TPC, TPC-G has been the bulk supplier for RInfra and BEST for a long time. For some time, RInfra has been reluctant to sign a long term PPA with TPC-G, so TPC-G stopped supplying power to RInfra. RInfra insisted that it had a right to get a share from TPC generation even in the absence of a PPA as the generation was meant for Mumbai consumers. TPC appealed against this claim of RInfra on its generation and won. Consequently, RInfra, which was anyway buying

expensive power from the market to service its consumers, had to buy more of such costly power. This resulted in revenue gaps and the creation of regulatory assets due to deferral of recovery³ of some of the revenue.

While this conflict around supply was going on, there was also conflict around distribution of electricity between TPC-D and RInfra. In 2002, RInfra filed a petition with MERC alleging encroachment by TPC-D into its service territory. One of the major issues in the hearing was whether TPC's license allowed it to distribute electricity in RInfra's territory. MERC concluded that TPC-D's license did allow it to distribute electricity in RInfra territory for all purposes. However, it cautioned that such an unfettered right to distribute electricity worked against MERC's ability to regulate the licensees in an efficient, economic and equitable manner and contradicted the objective of competition, efficiency and economy. Therefore, it directed the two companies to recruit a consulting company to study the issues. The adoption of the report of the consulting company, it said would be determined after a public hearing.

MERC's decision was appealed by both RInfra and TPC at APTEL. APTEL set aside MERC's decision saying that TPC's license did not allow it to distribute electricity in RInfra's service territory. TPC appealed APTEL's decision at the Supreme Court.

The Supreme Court quashed the orders of both MERC and APTEL. It ruled (Supreme Court, 2008):

- TPC-D's license did allow it to distribute electricity in RInfra's service.
- Regarding RInfra's contention that not having a distribution network in place, TPC was not in a position to supply energy to any consumer, the Supreme Court stated that it could use RInfra's network to wheel power to its consumers, given the overall intent behind the EAct being to promote competition. It stated that the concept of wheeling was introduced in the EAct "*...to enable distribution licensees who are yet to instal their distribution line to supply electricity directly to retail consumers [Emphasis added].*"

While discussing wheeling, the EAct does not characterize wheeling as a stop-gap measure as the Supreme Court envisions (EAct, Section 2(76)). Instead the concept of wheeling is generally thought of as enabling multiple suppliers to compete in an area while avoiding duplication of the distribution network. The Supreme Court seems to have combined the concept of retail competition with that of parallel licenses. In its decision, while it refers to the intent of the EAct to bring about greater competition, it does not consider the fact that at that time, retail competition was only allowed for consumers with a load greater than 1 MW. Similarly, while TPC-D's license may have allowed it to distribute electricity in RInfra's territory, Section 14 of the EAct allows such delivery by an entity but through its own distribution network.

MERC issued an order operationalizing the SC order. While it required that TPC-D pay wheeling charges to RInfra, there was no CSS to encourage open access in the time of shortage.

In 2009-10, TPC-D average cost of supply (ACoS) was Rs. 5.12 per kWh compared to Rs. 6.71 per kWh for RInfra. Many industrial consumers and even residential consumers switched from RInfra service to TPC-D. RInfra's customer base shrunk making it difficult to recover its regulatory assets. Following a petition by RInfra, MERC issued an order introducing a CSS and a regulatory asset charge (RAC).

RInfra then accused TPC-D of cherry-picking. Consequently, in August 2012, MERC issued an order whereby TPC could only use RInfra's network to serve residential consumers with consumption less than 300 kWh per month. For all other consumers, TPC-D was to use its own network. Further, MERC directed TPC-D to have a distribution network by 2013 in eleven clusters it identified.

³ The deferment of recovery was also on account of an investigation ordered by MERC into RInfra's short term power purchase (MERC, 2009).

While this tussle for consumers was going on between TPC-D and RInfra, BEST rates had also been rising, due to its power purchases. So BEST consumers approached MERC and petitioned to be allowed to switch suppliers. In its order of February 2010, MERC allowed TPC-D to serve consumers who wanted to switch suppliers, and also allowed it to lay its own network in the BEST territory.

Results from Mumbai Experiment with Multiple Distribution Licensees

The results from the Mumbai experiment have been extremely disappointing. Quite paradoxically, after all this competitive jostling for consumers, the tariffs for all licensees have increased very significantly. Furthermore, there is no incentive for consumers to switch because of the high tariffs and the surcharges that have to be paid for switching suppliers. As Prayas (2016a) laments in its submission to MERC, "...the story of parallel licensing in Mumbai is one of consistent planning failures, litigious utilities, ineffective regulation and tariff-burdened consumers."

In fact, as Prayas (2016a) reports, after moving to TPC-D consumers are moving back not because the other licensee's tariffs are lower but because the existing tariffs have increased. One of the major reasons identified by Prayas (2016a) for the dismal results from the Mumbai experiment is very poor planning and power procurement practices. TPC-C focused on selling its own generation. It signed no long term PPAs with other entities, but instead relied on purchases in the short term markets which are of course, expensive. Now it is trying to sign a long term PPA with a sister concern.

Prayas (2016a) also identified several regulatory lapses. First, there was a failure to control power purchase costs. Costs were simply passed through to consumers without any assessment of the prudence of the power procurement practices. In addition, there were delays and uncertainties about CSS and RAC which made it difficult for consumers to make informed choices. In addition, the large amounts of regulatory assets hide information about the real tariff.

Other Cases of Multiple Licensees

Drawing on Kumar and Chatterjee (2012:260-262), there are a limited set of cases of multiple licenses from which to draw lessons. Around 2004, Reliance wanted a parallel license in NDMC area. NDMC was opposed to it. However, the regulator decided in favour of allowing a parallel license to Reliance. But then the Ministry of Defence intervened and vetoed the idea. Another example is the case of Noida Power Company (NPC), which had a license from 1993 to serve Greater Noida for 30 years. Pashchimanchal Vidyut Vitaran Nigam Limited (PVVNL), a successor to UPSEB wanted a parallel license. One of the issues working against PVVNL was its poor financial health. But the UP Government said it would provide funds for network expansion and PVVNL was given the license. Not much is known about that experience.

Analysis

Multiple distribution licensees in the same geographical area is an unusual feature in the EAct. The wires part of the distribution business is recognized as a natural monopoly, and it is widely accepted that having multiple discoms in the same area is wasteful because there is unnecessary duplication of resources. More typical is having multiple retail providers in the same area competing by using the same wires.

The rationale given for this provision in the EAct is that it may have been needed for areas with no or a very deficient network. It is ironic that the examples of multiple licensees have been mostly in urban and well developed areas, such as Mumbai, while it is not known if it has been implemented in any remote areas with a deficient network since the passage of the Act, other than for SEZs. In any case, if areas with a deficient network were a concern, the EAct should have clearly restricted it to such areas.

It is also interesting to see how in the Mumbai experiment, the idea of a parallel license morphed into a case of retail competition but with very limited competition with just two players. Neither player was a competitive supplier,

instead both were “wires” companies. In a way Mumbai went from a case of regulated distribution monopoly to a quasi-regulated duopoly. Rules were written in an ad-hoc manner along the way about important issues such as: (1) whether there should be a CSS; (2) whether there should be a regulatory asset charge (RAC); (3) whether the second licensee should be required to develop its own network; and (4) if and how, the second licensee should be prevented from cherry-picking. It seems the regulatory agency was overwhelmed by the challenging conditions. For example, 21 months passed after introduction of the changeover (RInfra to TPC-D) before the CSS was introduced (Prayas, 2016a).

Because the Mumbai case was so unusual, many matters went up to the courts which ended up making some very important decisions such as: Should TPC-D be allowed to serve customers in another licensee’s service territory? And whether TPC-D needed to have its own network in the territory it wanted to serve. One must ask whether courts are the appropriate venue for making such decisions.

The problems of faulty power procurement by the licensees where both were more focused on using their own resources highlights the need, in retail competition, for strict separation between the wires company and the supply companies.

PROPOSED EACT AMENDMENTS (EAA) 2014

The Electricity (Amendment) Bill, 2014 was introduced in the Lok Sabha on 19th December 2014. Subsequently it was referred to the Standing Committee on Energy which examined it and submitted its report on 7th of May 2015. The government is likely to make some changes to the bill based on the report, but those changes have not been made public. The government seems committed to the issues covered in the EAA. However, because it has other more compelling priorities, it is not clear when a revised bill will be introduced and moved in the Lok Sabha. This lull in interest for political reasons could be beneficial as it gives us time to think through more thoroughly the implications of the EAA.

The bill deals with several issues: separation of carriage and content; determination of tariffs; promotion of renewable energy; and improvement of the performance of regulatory commissions. But separation of carriage and content is one of the main issues in the bill, and that is why it is of interest for this paper.

The next section describes the structure that is being proposed in the bill to implement separation of carriage and content, followed by a discussion of the international experience with such a separation and the concerns it raises about its implementation in India. Then, assuming that such a separation is to be implemented in India anyway, the paper turns to problems with the implementation framework that is envisioned in the bill.

Changes Proposed in Bill

The rationale for the proposed changes has not been provided. The Statement of Objects and Reasons attached to the proposed bill states that the intention is to “*further competition and efficiency in the distribution sector by giving choice to the consumers*” by introducing multiple suppliers based on market principles while continuing with the wires business as a regulated activity. However, it is not clear what broader policy goals are being pursued and what problem areas these changes are meant to address.

It is difficult to understand the framework that is being proposed to implement consumer choice just from reading the EAA. However, a report written for FoR on a rollout plan for retail competition based on the EAA provides a clearer picture (FoR, 2015). The description of the framework presented here is from that report. The key features of the proposed framework are:

- The distribution (“wires”) function is separated from the retail supply function.
- There is a single distribution company in an area.
- Multiple supply licensees in an area. There will be an incumbent supply licensee which will take over the supply function of the current discom, and most likely will be a government-owned company.
- There will also be an intermediary company in the area that will take over the existing PPAs of the current discom. These PPAs will be allocated among the various retail supply companies. However, the basis for the allocation is yet to be decided. Furthermore, the intermediary company may continue to procure power for the various retail supply companies in its areas, because new supply companies are likely to be small and may find it difficult to procure power.
- There will be a provider of last resort (PoLR). According to the FoR report, in cases where a consumer’s retail supply company fails to provide electricity to the consumer, the PoLR will supply electricity. (The PoLR will likely need to supply electricity also to those who are unable to be enrolled with a retail supplier. This is likely to happen to small consumers who may not be economically attractive to retail suppliers.) The incumbent retail supply company will be the PoLR.

The FoR report recommends a three stage process to implement retail competition in the power sector:

1. Functional Segregation of Discoms. Existing discoms will be divided into two functional sections: distribution and retail supply. Functions of each section will be defined and adequate financial and human resources will be allocated to each of them. This stage is expected to take 1-2 years.
2. Preparation for Competition. The sector will be prepared for competition by complete separation of the distribution and incumbent supply company, the reduction of cross-subsidies, upgradation of metering, and allocation of losses. This stage is expected to take 2-3 years.
3. Introduction of Retail Competition. Retail competition will be introduced in phases; for example, say large consumers will be allowed to select their suppliers in the first phase and the threshold for allowing selection of suppliers will gradually be lowered until all consumer categories are included. New retail suppliers will be given licenses in this stage.

From this description it can be seen that just introducing retail competition for some consumers may take 3-5 years, and it will take some additional time to cover all consumers.

Concerns about Introducing Consumer Choice Based on International Experience

Past work on the retail markets for electricity in India found that wholesale markets preceded retail markets by many years, and retail markets were not a priority for developing countries. Furthermore, benefits for small consumers were much less than for larger consumers, a result that had significant political costs (Dubash and Singh, 2005).

More recent international experience with consumer choice echoes those concerns. In UK, there is public disillusionment with retail competition. There is a general sense that prices only go up accompanied by high profits for the supply companies, and there is a lack of trust of the energy companies among consumers. There were a large number of tariffs offered by suppliers leading to confusion for consumers. Most consumers did not find the best deal, and suppliers set higher prices for consumers who did not switch. There has been an attempt to address some of these issues in the new UK Energy Act (2013). (Thomas, 2014)

In the US too, in the sixteen states that have introduced retail competition, the participation in the market by residential consumers has been generally low. Almost a decade after retail competition was introduced, except for Texas which had a participation rate of 40 per cent, the participation rate has been very low. The states of Massachusetts, New York and Ohio had participation rates of 7-19 per cent, while all the other states had participation

rates below 5 per cent. Commercial and industrial consumer classes had higher participation rates. As discussed later, low participation by small consumers raises questions for the appropriateness of retail competition in India at this time (Steinhurst, 2011).

The experience of low switching rates in the US and UK and the questionable marketing practices of suppliers particularly in the UK raise serious concerns about whether providing consumer choice is appropriate to be introduced in India at this stage. Small consumers are generally not very attractive to suppliers, and in India we have far greater percentage of small consumers compared to the developed countries. Therefore, most of these consumers will remain with the provider of last resort while larger consumers will more likely shift to competitive suppliers. This will increase the financial burden on the provider of last resort because more cross-subsidizing consumers will leave while the cross-subsidized consumers will remain. So if one of the aims of separation of carriage and content is to improve the financial health of the distribution companies (discoms), the separation will exacerbate the problem. Furthermore, those small consumers who do switch to competitive suppliers will be even more vulnerable to exploitation than their counterparts in developed countries because a greater percentage of such consumers in India are uneducated and poor.

Comments from State Power Departments

The Standing Committee on Energy (SCE) heard the views on EAA from representatives of power departments of various state governments. While several of the representatives felt that separation of carriage and content (C&C) was a good idea, they and others had the following concerns about the proposed bill (SCE, 2015):

- There would be cherry picking by retail suppliers with large consumers benefiting but smaller consumers suffering (Gujarat, Kerala, Goa, Jharkhand, Tamil Nadu, and Uttarakhand).
- Not appropriate for areas that have a shortage of power (Karnataka, Goa).
- Separation will add to the cost of service (Himachal Pradesh). An upgrade of metering will be required and will be expensive, and there will be disputes over metering between supplier and distribution company (Odisha).
- Not clear who would be responsible (or blamed) for poor quality of service: the distribution company or retail supplier (Kerala)?
- The PoLR will be left with low end consumers (Kerala).
- Difficulties in getting connections will increase because consumers will have to contact two entities: the distribution company and retail supply company (Uttarakhand).
- Decision to separate C&C should be left with states because the issue is on the concurrent list (Himachal Pradesh).

Efficiency Gains Swamped by Fuel Pricing Issues

One of the expectations from bringing competition in generation through consumer choice is that it will encourage efficiency gains in generation of electricity. The US experience shows that competition does improve efficiency at power plants, however, the impact is swamped by the effect of changes in fuel prices (Borenstein and Bushnell, 2014). Fuel prices are expected to have a similarly overwhelming effect in India. In fact, the imperfect nature of fuel markets in India is likely to be carried forward to the electricity market too. How would the Government ensure that there is fair competition when some players have access to cheaper coal backed by allocated mines while others do not? Some players may also have been able to get cheaper domestic coal while others have to buy imported coal which is more expensive even on the basis of heat content (per kcal basis).

Analysis

There are several concerns about the proposed mechanism in EAA for providing consumer choice:

- Power procurement by retail supply companies is one of the main areas where competition can lead to greater efficiency and lower costs. Innovation and creativity can be exercised by a retail supplier in many ways such as selecting sources of power, or in bundling the power requirements of different consumers to reduce costs. Yet in these proposals, the intermediary company will be doing most or all the power procurement for all retail supply companies in its area. This reduces the value of bringing in competition in retail supply.
- Much of the power procurement is based on PPAs which can last for many years, some times as long as 25 years. So there will be a long time before the system is free of these past contracts and can move to more competitive procurement by individual retail supply companies using their ingenuity to reduce costs.
- EAA proposes to have caps on tariffs that will be charged by retail supply companies. These caps will be determined by the respective SERCs. Caps may not be necessary because the rates charged by the PoLR will serve as a cap. If a retail supply company's tariffs are higher than those charged by the PoLR for that consumer category, the consumer will shift to getting its electricity from the PoLR.
- The structure that is being proposed is very cumbersome, with many players: distribution company, incumbent retail supply company, intermediary company, and of course, competitive retail supply companies. Furthermore, it will take a long time to implement; 3-5 years just to start implementing retail competition and then to cover all consumer categories could take some more years. Before such a drastic change is made in the structure of the power sector, it would be useful to note that currently there is great uncertainty about what the utility of the future will look like. Falling prices of renewables and the possibility of self-generation of electricity could make the utility of the future very different, or it could make the utility redundant. Given these uncertainties about the organizational structure of the sector in the future, does it make sense to consider making the changes proposed in EAA which would lead to upheaval and will take a long time to be realized, and may in the end no longer be required?

CONCLUSIONS, QUESTIONS AND ISSUES

Mismatch of Perspective of the Centre and the States

- Almost all the conceptualization of reform and ideas about bringing in more competition and choice seems to be initiated by the Centre. However, almost all the implementation falls on the states. Therefore, for the success of reforms there must be a shared perspective or vision for the sector. However, it is evident that this is not the case.
- The vision of the Centre about the power sector is one of a vibrant market where demand is met 24x7, and the market system is such that generation capacity is created almost automatically driven by the invisible hand of the market. This vibrant power sector in the future is also visualized as the main driver of growth, which in the mind of the Centre is the link to prosperity for the nation. The states see the power sector very differently. Their concerns are much more immediate – mostly about affordable tariffs, an issue with electoral and political repercussions. That is why the states are concerned about protecting the revenues of the discoms. Competition and efficiency do not seem to be that important to them.
- In all the reform efforts, there is a tussle between the Centre and the states, with the states requesting changes to the laws that slow down if not dilute reforms, for example: delay in unbundling and removal of the requirement to eliminate subsidies. The Centre uses carrots and sticks or rules to get the states go along with reform, such as in UDAY. But we should recognize that states will reform most expeditiously when the impetus for reform comes from the states themselves.
- In the US, the restructuring effort was initiated and driven by the states. Most of the states that had high electricity rates turned to restructuring their electricity sector; for example, California, New England states,

New York, and the PJM states. Would it be better to initiate reform efforts in one or two states in India, rather than focusing on reform pushed down by the Centre? Then if there is success in one state, other states may follow.

- If the effort does need to be nation-wide and pushed by the Centre, then there is a great need to build consensus. There seemed to that kind of consensus at the time of the NDC in 1993 and the development of the CMNPP in 1996. Why did that consensus fizzle out? What needs to be done to resuscitate it?

Interest in Competition as a Means to Change Discom Behaviour

- Competition is often seen as a means to wring out inefficiency in a sector. While that may also be true to some extent about the effort to bring greater competition in the Indian power sector, competition here seems to be seen as a way to force the discoms to change their ways. For example, some people feel that OA will force discoms to rationalize tariffs because otherwise they will keep losing customers with paying capacity.
- Competition is also sometimes seen as a way to isolate the subsidized portions from the rest of the system. For example, in EAA, those with less paying capacity will end up being provided service by the PoLR while the classes with paying capacity participate in electricity market. Unfortunately, not much is said in EAA about from where the money for subsidizing those consumers will come.

Difficulties in Bringing Competition in the Indian Power Sector

- Fuel prices determine about 65 per cent of the overall cost of generation. Therefore, competitiveness of the fuel markets in India will be a big determinant in the fairness of competition in the electricity sector. But the fuel markets in India are highly fragmented: (1) some players have coal mines allocated to them free of cost and they need pay only the cost of extracting coal resulting in very low fuel costs ; (2) others may get low price domestic coal from CIL and their costs could be a bit higher; and (3) some may need to import coal, and their fuel costs on a per kWh basis would be the highest. How would the Government ensure that there is fair competition between these three segments? The imperfect nature of fuel markets in India is likely to be carried forward to the electricity market too. Do we need to have reasonably fair competition in the fuel markets before we can have fair competition in the electricity market? How can India bring that about quickly?
- If we are interested in bringing about competition in generation, then the focus should be on wholesale competition. This is much simpler to do than retail competition but yet can wring out inefficiencies in generation. Wholesale competition can be accomplished through competitive bidding. But not enough attention has been paid to review the performance of competitive bidding. Why has insufficient attention been given to wholesale competition?

Faulty and/or Incomplete Legislation and Regulations

- As discussed in this paper, there are several examples of faulty and/or incomplete legislation and regulations. As an example of faulty legislation, the provision for multiple distribution licensees in the same area should not have been introduced at all. India may be the only country where multiple distribution licensees operate in the same area. It is unfortunate that even though the issue of duplication of resources was discussed before the passage of the Act, this provision was not removed. The experiment in Mumbai has caused great difficulties for many consumers in that city because of high tariffs and having to move back and forth between licensees. In addition, so many of the issues were litigated all the way up to the Supreme Court, and a great deal of time and money of many people was wasted.
- An example of incomplete legislation is the OA legislation which was silent on what should be the relationship between the discom and consumers who seek alternative supply through OA. The types of issues that should have been covered are given in the body of the paper.

- In fact the incomplete legislation on OA has allowed large customers to move back and forth between the market and the utility's regulated tariffs. If the legislation on OA had specified the relationship between the discom and OA customers more clearly and had put in measures to protect discoms from such "*opportunistic open access*," the utilities resistance to OA may have been weaker. Furthermore, incomplete legislation has resulted in an inequitable situation where large consumers are able to take advantage of lower prices wherever and whenever they become aware of them, but the cost of these swings in load for the discom are borne by the discoms and ultimately by the smaller consumers of the discoms who are unable to move back and forth between the market and the discoms as easily.
- Short term open access of the transmission and distribution system by generators and traders is appropriate and desirable. However, for reasons given above and in Section 3, use of short-term open access by end-consumers creates difficulties for discoms in planning their power procurement and imposes additional costs on them. There is a need for clearer rules that would govern the relationship between discoms and consumers who wish to avail of open access, and that would be fair to both discoms and end-consumers wishing to avail of open access. It may be worthwhile for FoR and SERCs to consider development of model rules to address these issues as discussed in greater detail at the end of Section 3.
- Incomplete legislation creates a vacuum that the Courts and Appellate Tribunals have filled. However, the Courts and Tribunals are ill-equipped to take these decisions. We also see incomplete legislation being filled by ad-hoc regulations. All this creates unnecessary confusion for people.
- Often the Ministry or other agency does not think through fully the potential consequences of some of its actions. For example, the directive on mandatory OA had the potential to create great upheaval in the sector. It would have been much better if the required legislation, rules or regulations to deal with these issues had been drafted before the directive on mandatory OA was issued.
- State and utilities' resistance to OA may be lower if there was no shortage of power and markets were already working because they could buy or sell power on the market at any time, so they would not be so concerned about losing consumers. But then it becomes a chicken and egg problem. There is a need to lower states' and utilities' resistance to OA in order to get well functioning markets with no shortages, but need well-functioning markets with no shortages to get utilities and states to lower their resistance.

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