An Approach To Introduce Competition In The Indian Power Sector

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Summary

The reform process initiated in this sector in the early 1990s has been a failure primarily because of the ad hoc approach that did not address the problems of the sector as a whole. With the situation continuing to deteriorate, there is an urgent need to steer the path of reforms towards a set-up that improves the efficiency in the sector and provides for a sustainable future. The model proposed is as follows:

- Allow bilateral contracts between IPPS and large users. Existing state/ central generating assets continue to meet the demands of the small customers.
- Open access transmission. Transmission companies retained as monopolies and paid an access charge based on usage and a margin for new investments.
- Distribution zones to be formed and gradual move towards privatization of distribution assets. Rates to the small customers arrived at on the basis of performance based regulation. Any social obligations in terms of subsidies that are pursued by the government clearly stated and paid for by the government.
- A clear and transparent regulatory set-up that eliminates the uncertainty associated with the progress of the restructuring exercise.
- Voluntary retirement schemes for SEB employees and encouraging SEB employees to take up entrepreneurial activities related to the sector.
- A sharing arrangement, where the government, distribution franchisee and the customers absorb the existing dues of the SEBs.

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Introduction

In the early 1990s, the electricity sector in India was restructured to allow private investment in generation. Prior to this, the electricity needs of the country were met by the State Electricity Boards (SEBs), which were public sector owned, vertically integrated monopolies regulated by the center and the state. Under government control, the SEBs were not operated on commercial principles, had very poor accountability structures and thus grew into extremely inefficient organizations. Despite this, the generation and transmission capacities increased significantly in this period, with the investments being funded either by the government or multilateral agencies. However, in the late 1980s, sources of funds from external agencies dried up and the government also faced a severe economic crisis. With the opening up of the economy in 1991, significant investments were required in the electricity sector if the economic growth targets were to be met. Thus there was no other alternative but to open the sector to private sector participation. Private sector investment was allowed in new generation by means of a single buyer model[2], where the competition is for the market, with the SEB being the buyer.

Although a large number of players expressed interest initially, they demanded very high tariffs and alternate credit backing mechanisms, such as counter guarantees and escrow accounts to enter into contracts with SEBs, which posed a huge credit risk. Added to this, there were inordinate delays in the clearance of projects as there was no single window clearance. Thus, the sector has since witnessed the exit of several players who had originally evinced interest and the additions to generation capacity by the private sector has been a dismal 5000 MW as of 2001.

This was primarily because the move towards attracting new investment in generation was addressed towards the symptom, namely insufficient generation capacity. However, it failed to address the root cause, which was the lack of the SEBs to be able to generate sufficient revenues to sustain its operations. This was realized in the mid 1990s and there was a move to rectify this by privatizing distribution and introducing a regulatory body. The state of Orissa was the subject of this experiment and if this experiment succeeded, this process was then to be replicated in other states. However, with the SEB still in the picture in the form of the Gridco, there still remained a significant payment risk. In addition, the regulatory body was not sufficiently independent from the government and there was a lot of uncertainty in terms of the regulator's policies. Thus the Distcos in Orissa continued showing losses and they have not been able to make significant improvements in their efficiencies of operation (billing and collection) as of 2001.

As for the overall picture of the sector in the country[3], most of the generation plants are still being operated at very low plant load factors, the T & D losses are as high as 40 %, the accumulated losses of the SEBs as of 2001 are over Rs. 26,000 crores and the SEBs owe over Rs. 40,000 crores to central generating stations, fuel suppliers, etc. The huge losses are on account of the fact that the revenue realization (Rs. 3.04/kWh) is below cost of supply (Rs. 2.12/kWh). The country still faces an energy shortage of 7.8% and peak demand shortage of 13%.

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[2] A model recommended by the World Bank for electricity sectors in developing countries.

[3] Ministry of Power, "Blueprint for Power Sector Development", 2001 (http://powermin.nic.in/report/mop-blueprint.pdf)

When these problems are viewed in the light of the needs of the sector to double existing capacity[4] (approx. 100,000 MW) in the next ten years in order to meet the forecast demand requirements as per the 16th Electric Power Survey, one gets a sense of the severity of the problem. If the current situation in the sector is allowed to persist the consequences could be disastrous for the sector and therefore to India's stated goals of economic growth and development. There is an immediate need to give a new direction to the reform process in order to steer the sector towards a more efficient and sustainable future. This paper will discuss an approach that can help achieve this goal.

Approach to Introduce Competition

The current single buyer model of competition, even with an efficient distribution segment, cannot be a lasting solution because it does not provide sufficient incentives for the suppliers to minimize costs. In the case of India, the credit risk associated with the SEBs meant that the model did not achieve even the temporary goals of enhancing generation capacity in the transition phase. Any model that is proposed thus needs to eliminate this credit risk associated with SEBs while still providing incentives to invest in generation.

Thus the model proposed her is some form of third party access as has been adopted in countries such as Kazakhstan.[5] The specific approach in India could be to immediately allow a multiple seller-buyer market where power producers and industrial customers (load > 100kW) can enter into bilateral contracts. This will do away with the issue of the high credit risk associated with the SEBs and lead to a

[4] Refer Footnote 1

lower cost of capital for the projects. In order to deal with any near term shortage or surplus arising from the contracts due to unforeseen circumstances, a balancing market can be operated either on a daily or weekly basis. The existing Power Trading Corporation can operate the balancing market. The existing state and central generating plants, which are already depreciated, will continue to supply power to the SEBs, which cater to the power needs of the small customers.

Simultaneously, in order to address the inefficiencies at the distribution end, distribution will be gradually privatized and they will be provided a specific time frame, say 5 years, in order to bring their operational efficiencies up to international standards. Once these standards are achieved, the Distcos will also have to shop around for power and the state and central generating stations, which were stipulated to supply power to distribution companies will also be allowed to participate in the bilateral markets. The tariffs to the small customers will be arrived at based on performance-based regulation ("RPI–X" regime) with the performance reduction factor, X, being determined in concurrence with the regulatory commissions every 3-5 years. If the government wishes to continue any social obligations, the categories of customers have to be clearly identified and the government should pay out the difference between the subsidized tariff and the cost of supply, with a factor incorporated for some fixed rate of return.

In order for this system to function, open access transmission has to be introduced. It is not economical to have multiple transmission providers and hence transmission will remain a monopoly and will be paid a regulated charge, which incorporates both

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[5] Kennedy, David, "Competition in the Power Sectors of Transition Economies", Working Paper N0. 41, European Bank for Reconstruction & Development, 1999

the usage charge as well as a margin towards future investments. Given the current state of the transmission infrastructure, the generating companies should be allowed to contract with industrial customers in their own region (North, East, South, West and Central) with first preference to customers within the state in which the generating company is going to be located.

In addition, in areas that still do not have access to electricity, the Ministry of Power needs to collaborate with the Ministry of Non-conventional Energy Sources to explore the possibility of setting up stand-alone renewable energy plants in areas where it is uneconomical to extend the grid.

In order for this model to work, the regulatory commissions need to be empowered to function independently and have a key role to play in terms of creating awareness among the public vis-à-vis the costs and benefits of the reform process. The commissions also have to reduce the uncertainty by setting forth a clear agenda for the sector as a whole, which lays down the goal of the reform process, the eventual industry set-up and an assurance that there will be no obstacles to this process.

Impact of this Model on the Various Stakeholders

This section analyzes the impact of the above model on the various players in the industry. Starting at the consumer end, the small consumers will continue to be supplied power from fully depreciated plants owned by the state and the center. Since the plants are already depreciated, the average costs will not change significantly from the current figures and the small customers are thus not exposed to any significant increases in tariffs. With the move towards privatizing distribution assets, while the competitive procurement of supply may lead to a rise in prices,

better performance will remove the costs associated with the significant inefficiencies in the system and thus the overall increase may not be very significant in the next 10 years.

As for the industrial customers, their current cost of power is extremely high and is comparable to the tariffs demanded by the IPPs. Thus they have an incentive to enter into contracts with the IPPs, as these contracts will ensure them more reliable power. The IPPs themselves will be ensured of a higher off-take and hence may be willing to supply power at lower prices than that seen in PPAs today. Further, since most industries may not be comfortable with taking a long-term contract of greater than 10-year duration, the IPPs will have to provide more attractive terms if they want to attract the industries to accept longer duration contracts.

The IPPs who have already invested a lot of resources to enter the country but are yet to see any progress on their projects will find this as an excellent alternative to move their ventures forward and will be more than willing to work out new arrangements with industrial customers. The real problem arises with projects that have already gotten underway and have long-term contracts with the SEBs. The government could consider auctioning these contracts to the industry with the government having to bear any of the costs incurred in this auction process.

Another segment, whose problems need to be addressed, is the workforce of the SEBs. The SEBs are currently overstaffed and the move towards a competitive set up will definitely lead to huge job losses. A first step to address this maybe to have a VRS option to reduce the existing workforce. Although this imposes a further cost, the burden of this scheme is likely to work out to be lower than the losses incurred

by the SEBs as result of their continued operation. Further, employees can also be encouraged to take up distribution franchises and other activities, such as billing and collection operations, that are likely to be outsourced with the privatization of the distribution companies. The government can also arrange for means for these employees to be able to finance the venture.

Lastly, the issue of the existing dues of the SEBs needs to be addressed. This is likely to pose a lot of difficulty but there is no other way of dealing with this problem but to have an arrangement where the government, the privatized distribution company and the consumers absorb the losses equally.

Conclusions

While the problems in the sector are numerous and pose severe challenges, they are not insurmountable. The approach proposed in this paper calls for a multi-buyer multi-seller arrangement at the generation end with large users procuring power competitively. The transmission segment is retained as a monopoly and the distribution segment consists of privatized companies operating in a regulated regime. At the wholesale level, this model will eventually tend to a set-up similar to that operating in the UK currently. However, given the small customer profile, it is neither feasible nor advantageous to consider retail competition as is possible in the UK.

While the attempt of this approach is to minimize the impact on any specific segment of society, it goes without saying that some of these steps are likely to have adverse effects in the near term. But these costs have to be borne for the sector to be able

to sustain itself and function efficiently in the future. Thus, there needs to be a clear social and political consensus to meet this challenge head on and move forward.