

# Competitive Electricity Markets in India: A Regulatory Challenge

## Contents

- 1. Introduction**
- 2. Regulatory Mandate and Scope of Regulation**
- 3. State Electricity Regulatory Commissions Organisational Capabilities**
  - 3.1. Organisational Structure and Human Resources**
  - 3.2. Chairpersons and members**
  - 3.3. Staff on Deputation**
  - 3.4. Funding**
  - 3.5. Regulatory Information: A key for effective regulation and its Accountability**
- 4. Regulatory Instruments and Processes**
  - 4.1. Economic and non-economic instruments**
  - 4.2. Tariff Determination Process: Can tariffs mimic competitive rates?**
- 5. Regulatory performance and accountability**
- 6. Summary**

*“Governments throughout the world engage in three main activities: they tax, they spend, and they regulate. Regulation is the least understood . . .”*<sup>1</sup>

## **1. Introduction**

Competition is not naturally preferred phenomenon by suppliers in any market. Given an opportunity supplier of any commodity or service would prefer more control over market than less. But given freedom of entry most markets become competitive through entrepreneurial process of identifying opportunity to make profits. Low entry exit barriers, credible institutions aimed at ensuring enforcement of contracts, reducing transaction costs, and freedom to price are key requirements that enable development of competitive markets. Where industry structure shows concentration of market power arising from scale economies or the natural monopoly conditions additional non-market based institutional framework including competition laws and regulatory authorities may be necessary. How do these theoretical precepts relate to electricity markets in India?

Electricity markets in theory are no different from any other markets except that the scale economies and to some extent network characteristics make transmission and distribution segments natural monopolies. The English and Welsh experiment in unbundling, followed by privatising and introducing competition in retail sector suggests that it is possible to consider electricity distribution as potentially competitive industry rather than natural monopoly. There is also no strong economic rationale that would suggest that electricity should be supplied by only private or public sector entities. Traditionally the electricity supply in India like in most parts of the world has been vertically integrated publicly owned and managed monopoly at in each state. The public ownership of electricity in India is part of the legacy of ‘command economy model’ adopted by India after independence. However, there has been significant shift in India’s approach to electricity markets since the economic reforms were launched in 1991. Electricity sector policy reforms at national level in India particularly allowing of domestic and foreign private sector investment in electricity industry, passing of the Electricity Regulatory

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<sup>1</sup> Scott H. Jacobs, “Building Regulatory Institutions: The Search for Legitimacy and Efficiency” (OECD, Centre for Cooperation with Economies in Transition, Paris, 1994).

Commission Act, 1998 and subsequently the Indian Electricity Act, 2003 have created opportunity to put in place some of the above mentioned requirements to develop competitive electricity markets in the country. Responsibility to develop competitive markets has been delegated by the government to quasi-governmental autonomous organisations (QUANGOS) who are quasi-judicial Electricity Regulatory Commissions (ERCs). These ERCs are designed to be autonomous but their decisions could be referred to the Appellate Tribunal for Electricity and challenged in the High and Supreme Courts. In this paper I review the developments in the regulatory practice and identify the challenges that ERCs face in a complex political and economic setting in which they operate.

The present debate on reforms in electricity sector, in particular the regulatory reforms, must start with noting of two facts about this sector. First, the constitution of India lists electricity in the 'Concurrent list' empowering both the national and state legislatures with legislative powers to provide policy and institutional framework for working of electricity supply industry. This dual legislative authority has resulted in multiple regulatory institutions at national and sub-national level by default. A question which is not raised usually is how might have electricity markets evolved had there been no state boundaries as it is in telecoms or oil and natural gas industries for example<sup>2</sup>. This paper is not about counterfactual analysis of electricity industry so we leave the issue here by noting that it would not have made great difference in the performance of the electricity industry and political interference would have come from central rather than state governments. This is argued based on the fact that in oil and natural gas industry with nationwide markets the central government has been using kerosene, cooking gas (LPG) and diesel subsidies to pursue socio-political objectives. So subsidies would have emerged in electricity sector owned by Central Public Sector Electricity Board or Enterprises, but perhaps targeted differently. From public choice theoretical framework it could be argued that in a democracy political control combined with public ownership of

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<sup>2</sup> I am grateful to one of the anonymous referees for the suggestion that this question could be explored in context of oil and natural gas industry context. However, since the main theme of this paper is regulatory challenges in present context of electricity industry, the opportunity of doing more careful comparative analysis of outcomes in the oil and natural gas industry and supposed national electricity industry is left here with some general remarks only.

industrial activities would lead to political influence on the resource allocation and pricing decisions in the state enterprises. Another implication of nation wide markets in electricity could have been a central regulatory authority rather than multiple state level agencies. We have more to say on this issue later in summary section of the paper. Here however, we note the second fact about electricity industry, the State ownership of electricity industry in most parts of the country has been conveniently used towards redistributive ends making the policy on electricity and regulation an important issue in electoral politics at state level. Formulation and implementation of economic regulation of electricity industry is shadowed by these two facts.

Regulation of electricity industry is not new. Given the importance of electricity supply in the overall economic development and electoral implications of electricity prices, the industry was heavily controlled by the government anyway. The new regulatory arrangements for the industry are different in two important ways. First the present regulatory legislations substantially take away the electricity industry regulation from the direct control of the government and second the regulatory bodies have definite objectives that are not linked to the electoral politics. The rationale for this delegation is expected to make economic regulation more effective and efficient compared to direct control by the government ministry or department. However, it seems difficult in foreseeable future that any political party at national or state level will simply let the economic factors determine the tariffs charged from the consumers as the political consequences of removing subsidies completely. There is no easy answer at present to question of how to de-politicise electricity sector. We offer a possible way forward on regulatory reconfiguration in section 6 as recommendation which may help in long term to reduce political interest in the electricity industry.

The electricity regulatory commissions with exception of Orissa State Electricity Regulatory Commission which was set up earlier in 1995, were created subsequent to enactment of Electricity Regulatory Commissions Act, 1998. This was later replaced with the Indian Electricity Act, 2003. This provides a very short window of time to assess the regulatory outcomes but there still is opportunity to take stock of various developments in

the electricity regulation in India specifically introduced to help create a competitive market structure and a platform for attracting private investment in the sector. Prayas Group report (Prayas Group, 2003) and Dubash and Rao (2006) are two of the few studies that examine the governance aspects of the electricity regulation. Prayas Group report is quite comprehensive early survey of resource based analysis of regulatory capabilities also reporting on the transparency and public participation in regulatory process. Dubash and Rao (2006) examine constitution and functioning of regulatory agencies in political context in which regulators operate. Through comparative analysis of two ERCs, Delhi and Andhra Pradesh, they argue how the bureaucratic and political dynamics may undermine the development of independent regulatory agencies. While drawing on similar evidence of resources and capabilities as in Praya Report referred above, in this paper we focus on the regulatory outcomes and challenges faced by regulators in delivering effective regulation and developing competitive electricity markets.

Despite remarkable major legislative and institutional changes in the Indian power sector, there is a wide gap between the demand and supply of power and a substantial peak and energy shortage in the country. National policy document mentions that high level of technical and commercial losses and lack of commercial approach to management of utilities led to unsustainable financial operations; cross subsidies have risen to unsustainable levels; and that inadequacy in distribution networks has been one of the major reasons for poor quality of supply<sup>3</sup>. Similar views are echoed in an expert report on energy from Planning Commission of India<sup>4</sup>. The electricity regulatory commissions face a daunting challenge in undertaking their responsibilities and functions given the current financial problems of state distribution utilities and SEBs as well as the planned expansion of the power sector. It is imperative to attract adequate investments in the power sector by providing appropriate returns on investment and ensuring reasonable tariffs for the consumers. Recently issued draft national tariff policy stipulates its objectives as

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<sup>3</sup> National Electricity Policy, 2005, Ministry of Power, GOI, New Delhi.

<sup>4</sup> An Integrated Energy Policy: Report of the Expert Committee, Planning Commission, GOI, New Delhi, August 2006.

- 1) Ensure financial viability of the sector and attract investments;
- 2) Ensure availability of electricity to consumers at reasonable rates;
- 3) Promote transparency, consistency and predictability in regulatory approaches across jurisdictions and minimize perceptions of regulatory risks ( Ministry of Power, 2005)

This paper broadly concerns to the third objective and assesses the short experience of economic regulation of electricity in India. Short time interval and nascent regulatory regimes limit the analytical options in terms collecting information on the regulatory practices and relating the same with expected outcomes in terms of improved performance of the industry and development of competition in the segments where it is technically feasible and economically desirable. Therefore, paper provides analysis of the published information on the regulatory objectives, instruments and processes of Central and State Electricity Regulatory Commissions. As of October 2006, in addition to CERC there are 18 SERCs. Information about the functions performed by ERCs, the regulatory practice is collected through websites of 18 SERCs, the regulatory outcomes in terms of number of tariff orders and other regulations made by ERCs to smoothen the functioning of electricity markets in are collected. In addition to this the author visited four regulatory commissions in August 2006 and collected information through a semi-structured interview from the chairmen, member and secretary level officers of the commissions.

The regulatory objectives and scope of electricity regulation are discussed in following section by examining the functions of the regulatory commissions as enshrined in the Indian Electricity Act, 2003 and several state level legislations. In section 3 organisational capabilities are discussed and observations based on the interviews carried out in regulatory commissions are provided. Section 4 discusses the regulatory process and regulatory instruments. Section 5 provides a brief discussion of studies of assessment of regulatory commissions and comments on the Indian ERCs in that context. Section 6 concludes the paper with a summary and few suggestions for improving the regulatory practice in developing countries.

## **2. Regulatory Mandate and Scope of Regulation**

Respective States Electricity Reform Acts and Indian Electricity Act 2003 define the role and responsibilities of the ERC. Specifically, the Electricity Act 2003 provides for framing of regulations by the state commissions for giving effect to the provisions of the Act like licensing, supply code, terms and conditions for determination of tariff, trading, providing open access to consumers, removal of consumer grievances etc. The typical generic roles of the states electricity regulatory commissions are aimed at (1) improving efficiency through out electricity supply chain (2) safeguarding the interests of the consumers; (3) preventing monopolistic behavior by operators; and (4) establishing independent and objective decision making process for various decisions that it takes. Detailed description of various functions of ERCs is provided in Appendix 1. Despite the variations in terms used to describe their functions or some additional activities, the typical functions of the state electricity regulatory commissions' functions can be summarized as following:

- 1) Issue licenses for transmission and distribution
- 2) Regulate the operations of the licensees
- 3) Fix and regulate tariff for transmission, bulk supply and retail distribution
- 4) Promote competition
- 5) Create environment for private sector investment in the industry
- 6) Balance the interests of the suppliers and consumers
- 7) Aid and advise government on all aspects of electricity industry

The stated objectives and the functions to be performed by an organization define the scope of the work. The scope of the work provides some idea about the resource and capabilities needed to perform the range of activities enshrined in the regulatory mandate. It is clear that to perform their roles effectively ERCs need not only autonomy that has been ensured through provisions in the relevant Acts, but also adequate resources, in particular human resources trained in economics, competition policy, law, technical know how of the industry. We review these issues in the following section. Here it is worth noting that the Electricity Act, 2003 and state level

legislation empowering the Central and State ERCs respectively do not provide powers to the commissions to force the state governments to un-bundle the state electricity boards (SEBs). This has limited the scope of the SERCs to introduce effective competition in electricity generation segment of the industry in states like Tamil Nadu, West Bengal, Bihar and Punjab where SEBs still remain vertically integrated suppliers. In some cases the unbundling has not been effective in separating the generation, transmission and distribution activities as is expected in the Act. Uttar Pradesh case is an example here. Unbundled UP SEB is now replaced by a transmission company and four distribution companies but as a report from the UPSERC<sup>5</sup> suggests there was confusion regarding separation of trading and transmission functions or the legal status of UP Power Transmission Corporation Ltd. as a trading utility. Such issues do not allow SERCs to perform their tariff determination function in time. One would expect that these teething troubles will eventually wither away providing clearly distinguished regulated activities for ERCs. However, this is going to be slow as the electricity consumers profile varies across the states. In some states proportion of subsidized consumers is higher in others it is lower making electoral consequences of reducing subsidies variable and thereby differing political commitment to rationalization of tariffs. In addition there are still ideological issues in some states that hold back political commitment to the reform of electricity industry. Slow pace of regulatory reforms in West Bengal and Kerala provides two illustrations where left leaning political ruling political parties have been slow in unbundling electricity boards. The Central government has limited say in electricity policy implementation at the state level. This combined with the compulsions of coalition politics at the Centre since 1991, has not provided a strong national political conviction and commitment that would see more effective role of Central government in pushing for uniform approach to electricity sector reforms at the state level. In sum it can be argued that although the ERCs have been given wide canvas to change the shape of electricity industry, it will be some time before competitive markets in electricity characterized by more consumer choice, reducing demand supply gap, competition for market share and efficient markets for trading the power inter and

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<sup>5</sup> UPSERC Order, for Petition No 368-372 of 2006.



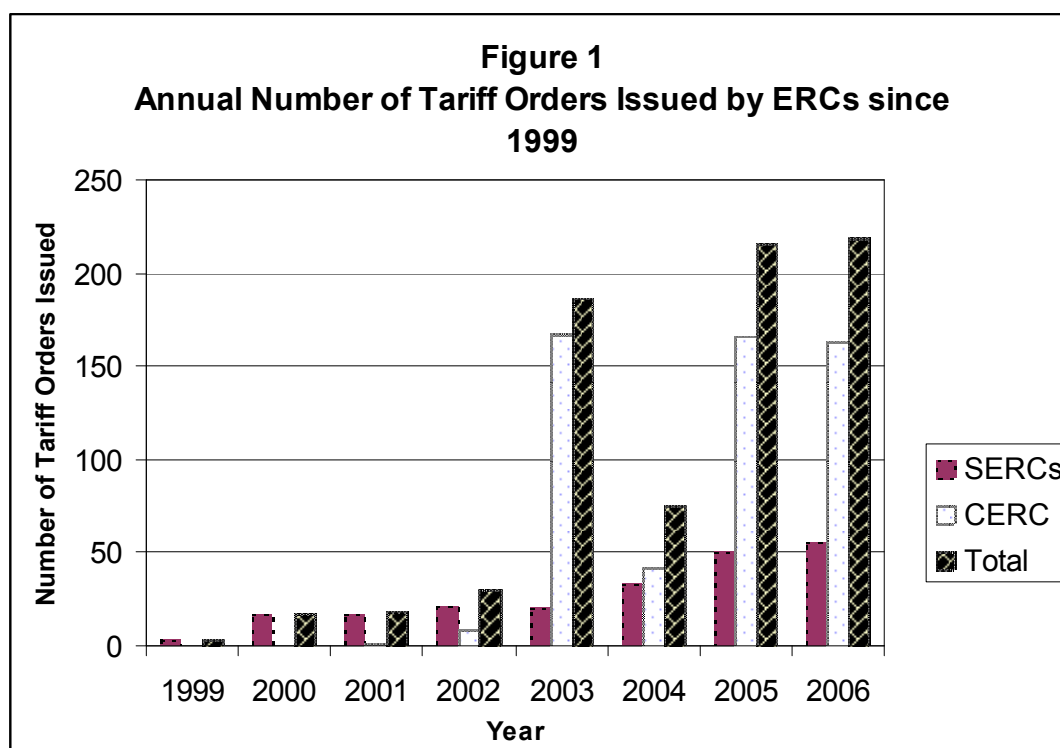
intra state develop in India. Competitive electricity markets in generation segment will also depend on how liberal are the coal and gas markets. At present coal is a least open with almost entire industry owned state enterprises. There is no competition for or in the market. Gas exploration has been liberalized in India, however, transmission pipelines still remain with state enterprises.

The transmission segment of the electricity industry shows strongest natural monopoly characteristics. However, as Rao (not dated) suggests that there is possibility of parallel transmission lines given that there is huge shortage in electricity carriage capacity in the country and parallel lines are economical to put. This means one could see some scope for competition in this segment also. Delivering competition in retail (low voltage supply to domestic and other consumers) requires major developments in meter reading capabilities of distributors in addition to first having all connections metered with uniform metering technology. This has been achieved in England and Wales where consumers can easily switch from one distributor to another at no extra transaction costs. Given that it is one of the regulatory objectives to promote competition, it seems regulators need substantial powers to force the government and state electricity suppliers to agree to time bound plan for installing reliable digital meters as a way forward to potential competition in low voltage electricity markets in future.

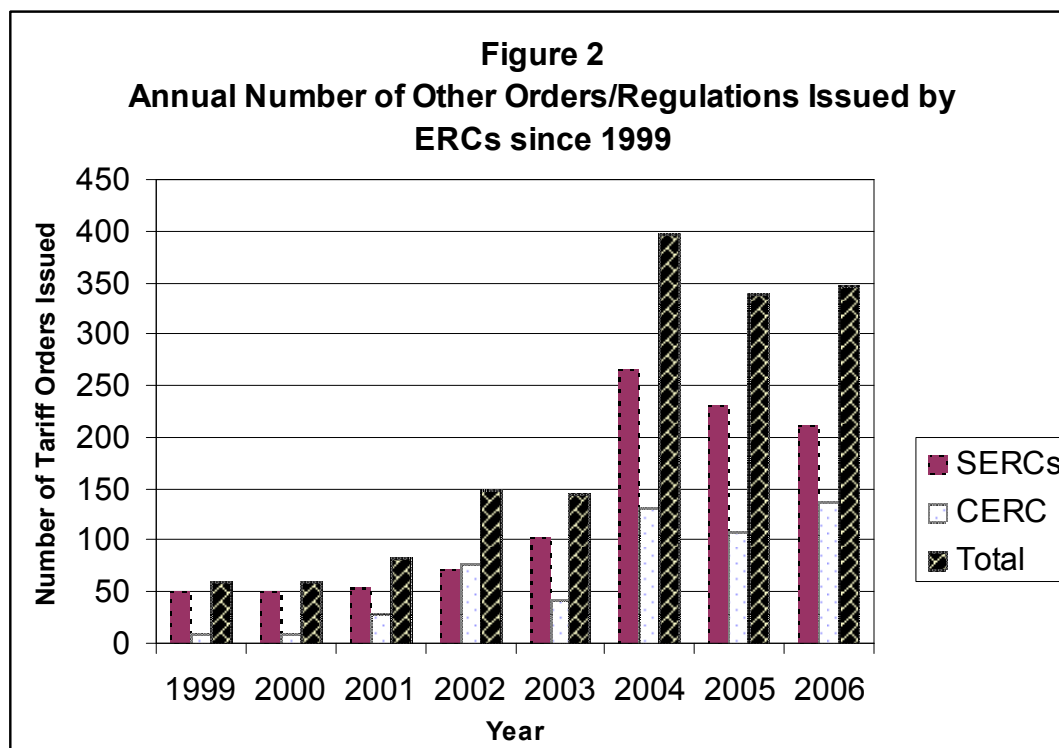
Till the competitive markets develop most regulators could do with yardstick competition by comparing the peer group performance in regulatory decisions particularly those dealing with determination of costs and tariffs. We discuss this issue further in section 4.2 below. But before that we briefly take stock of what regulatory commissions have been doing.

CERC and SERCs have shown remarkable commitment towards their multiple roles. They have started issuing tariff orders, perhaps their most visible function of tariff determination as survey of the websites of the ERCs shows. They have been issuing tariff orders in time in most cases, except in cases such as UP mentioned above. In

addition to tariff determination, the ERCs have been putting in place the framework for competition in transmission by issuing orders, guidelines and supply codes for bulk trade for intra and inter state sale of electricity, the wheeling charges are being decided and grid codes are published. Some evidence on the regulatory activities in past few years captured in Figures 1 and 2 below shows that ERCs have been quite busy despite limited resources. From 1991 when CERC was set up to October 2006, the ERCs have issued 765 tariff orders and 1586<sup>6</sup> other orders and regulations.



<sup>6</sup> This includes 35 orders issued by Orissa between 1996 to 1999.



At present tariff orders are issued on annual basis meaning one tariff order per year per regulated entity at the state and central level. As we discuss in section 4 below each tariff order is preceded by a very elaborate exercise. It is remarkable that CERC and SERCs have been performing this arduous task with limited manpower and support from contractual staff and or consultants. With move toward multi year tariffs the number of tariffs determination exercise may reduce but with move towards availability based tariff the complexity of determination process may increase a bit. However, the assessment of these regulatory decisions on tariff or efficacy of the rules for ushering in competition in generation and bulk supply will require information over time and therefore it is a relevant research issue for future. Specifically it will need to be asked how effective are the ERCs in identifying the potential cost efficiency gains across the supply chain, particularly in distribution and pass these gains to the consumers in lower prices. This can be judged only after the operational inefficiencies are separable from subsidies, cross subsidies and theft of power. This in turn will depend on meticulous record keeping and metering by the distributors which

so far has not been up to mark as we find from reading of tariff orders and other reports of ERCs suggest in many cases.

Many of the orders counted above relate to dispute resolution between suppliers and clarifications to tariff orders. However, in case of consumer protection, despite ERCs having mandate to protect the interests of consumers, in practice the consumer protection powers of ERCs are being interpreted narrowly as relating to matters of tariff determination only. For the service parameters such as billing and metering difficulties that consumers experience, the matters are to be referred to Electricity Consumers Grievances Forums of the suppliers and Ombudsman. ERCs have been defining the expected service standards about reliability, billing standards etc., but any complaints related to non-tariffs are not to be entertained by ERCs. A recent case in Maharashtra where the state ERC's decision requiring distributor to compensate the customers was challenged by the distributors. Appellate Tribunal withheld the challenge against the SERC and who has now taken the matter to the Supreme Court now (See Box 1 below). These types of cases show that clear definition of the roles of various agencies Ombudsman, ERC and Government is still not there and the situation is likely to remain so for some time to come. There is little evidence to suggest that ERCs have put in conscious efforts in advocacy or consumer capacity building to increase well informed wider stakeholder participation in regulatory process. In most cases it is existing voluntary organizations, consumers association and think tanks like Consumer Unity and Trust Society in Rajasthan, Prayas Group in Pune, Maharashtra who have been taking up consumer cause and preparing wider stakeholder responses to tariff orders. ERCs could do much more on this aspect of consumer education by educating them to appreciate the complexity of the industry and giving free access to relevant data through internet so that they could participate more effectively in the regulatory process.

**Box 1: Mix up of institutional roles: Predictability and autonomy at stake**

In 2005, Maharashtra Electricity Regulatory Commission (MERC) declared billing practices followed by the distribution companies which included both private and public sector companies, to be improper. The commission directed these companies to stop practice of issuing amendment / supplementary bills and average bills and also to refund money to consumers on account of such bills. The refund payable to consumers on account of these orders is to the tune of Rs. 3000- 4000 million.

The distribution companies appealed against these orders to the Appellate Tribunal for Electricity (ATE). The ATE in its judgement passed in March 2006 concluded that matters relating to wrong billing practices are in the nature of billing disputes, and moreover said that the state regulatory commissions (SERCs) have no jurisdiction to entertain consumer petitions on these issues even if the wrong / excessive bills are due to (a) systemic violation by utility and / or (b) non-compliance with statutes. According to ATE Consumer Grievance Redressal Forums and Ombudsman created under Electricity Act are the competent forums to deal with such complaints. ATE judgement does mention following as function of the SERC as legitimate function as per Act:” ..to specify or enforce standards with respect to quality, continuity and reliability or service by licensees;”. But from the judgement of ATE it seems that ‘proper billing’ can not be considered a service which seems to have been interpreted by ATE in the narrower technical sense of the term.

Now the MERC along with few consumer groups has appealed against judgement of ATE to the Supreme Court of India who will now listen to the parties and decide the matter.

This case raises the question whether the regulatory commission could have approached this situation differently or is there an inherent problem in provisions of the Electricity Act, 2003 and State’s regulatory act? It seems that the case there is unclear definition of the powers of ERCs in the state level Act with regards to its mandate on non-tariff related matters. This needs to be dealt with at legislative level rather than leaving scope for parties in disputes to play one arm of regulatory regime against another.

Case facts source: ATE, Appeal No. 30 of 2005, 164 of 2005 and 25 of 2006 and [www.prayasgroup.org](http://www.prayasgroup.org)

The survey of the functions of regulatory commissions shows that they have a very wide range of duties to perform and that they seem to be performing their roles efficiently looking at the number of orders and regulations produced by them in short span. However, these orders have now created and increased opportunity for ERCs to monitor the performance of the regulated players and take action if the orders are not followed. Overseeing effective implementation of various orders thus becomes an

expectation against which the performance ERCs in future could be measured. Some important regulations for opening up the access of transmission grids for intra and interstate transmission, licensing of bulk traders in electricity, allowing captive producers to participate in the bulk supply markets should go a long way in laying foundation for competitive markets in generation in due course. However, there is little evidence to suggest that ERCs have been able to achieve deeper restructuring of state electricity board beyond unbundling. For example in case of having smoothly operating load dispatch centers to facilitate competition in the supply segment. This suggests the complexity of ERCs' roles and need for building capabilities to meet the challenges of managing competition and regulating the industry. ERCs would therefore, need to have adequate resources and competent staff. We turn to these issues in the following section.

### **3. State Electricity Regulatory Commissions Organisational Capabilities**

#### **3.1 Organisational Structure and Human Resources**

The ERCs share organisational structure that is based on functions. Accordingly, the functional form of organisational structure is prevalent in all ERCs to undertake regulatory functions vested in them. The typical organisational chart consists of the three member commission at the top, followed by three to four directorates (some times called secretariat or divisions in some states) each responsible for technical (engineering), tariff, law and administrative functions. Employees of relevant professional backgrounds and industry experience, most notably engineers, economists, accountants, lawyers usually support the commission. Despite the similarity (isomorphism) in organisational form there are some differences in number and quality of human resource deployed for undertaking the vested roles and responsibilities effectively.

The available information on states electricity regulatory commissions human resource development reveal that there are efforts to employ the relevant personnel with

appropriate skills and qualifications such as engineering, economics, accountancy, law and to some extent management and other fields. There is also observed the gap between sanctioned and actually employed staffs level indicating that there are still vacant positions in most of the commissions. Furthermore, there is a wide variation in staff strength as well as minor differences in level of qualifications required across the states. Of the states commissions, the Andhra Pradesh, Gujarat, Haryana and Orissa are manned with the relatively larger number of staffs and right qualifications as compared to other states (based on available information on Commissions' internet website). In terms of consultancy use, however, the available information shows that Karnataka ERC is primary user of this service since it has 12 consultants working for the Commission in addition to its 13 officers. Some of the states' commissions use consultancy services in undertaking regulatory functions most notably in preparation of relevant state level regulations and orders. For instance, the Rajasthan ERC used consultancy services for preparing a background note and draft of the regulations on terms and conditions for Open Access to intra-state transmissions and distribution systems under section 42(2) of Electricity Act 2003 and for drafting the trading licensing regulations and for preparing a background note (RERC, 2005:2). In some states the use of consultancy services is evident to augment their organizational capabilities as this was constrained by the lack of adequate well-trained and professional employees. On the other hand, the lack of organizational awareness in terms of what is expected, how to do it and by what means also affected some of the states electricity regulatory commissions. The Uttar Pradesh Commission has noted that the lack of efforts on institutional capacity development. There is no conscious effort to improve the quality of human resources through training, performance evaluation and rewards for achieving organizational goals (UPERC, 2003, Power Diary: 6)

### **3.2 Chairpersons and members**

Overwhelming majority of ERCs are headed by Chairman who come from government officers of Indian Administrative Service (IAS). In most cases Secretaries are also IAS officers. It could be argued that since ERCs have to liaison with government on issues

ranging from funding and staffing of the commission to coordination with law and energy departments within government on policy issues, an experienced IAS officer will help functioning of the ERCs. Although there may be some merit in this argument, it does not mean that the secretary's job can not be done effectively by a non-IAS person. Actually a non-IAS secretary with more stable tenure period is likely to be preferred as the experience gain by the secretary could be utilised by other SERCs as non-IAS will be more mobile across the country compared to IAS who would be restricted in their movements even if they wished to remain in regulatory field. The Electricity Act, 2003 lays down detailed description of appropriate qualifications and procedure for selection, but in practice the Central and State governments so far have found appropriate persons to chair the ERCs from among the existing and retired bureaucrats in most cases. Although a selection committee is formulated as per the Act, the Committee is made up of members belonging to various government agencies or departments. The Committee has power to recommend two names to the Ministry who recommend one of the two names to the government for approval. Most of the Members of the ERCs also are retired officers from either other civil services such as revenue or comptroller and auditor general's offices and also from government owned power sector organisations. Essentially top layer of ERCs is almost like that of a government department but is expected to be at arm's length relationship with the government as enshrined in the Electricity Act. One may argue that given that electricity industry has been mostly in public sector there is not much trained manpower and expertise in the private sector or other civil society organisations from where to draw the talent for ERCs. If this argument holds then one would expect that at present ex and existing government officers dominated ERCs will be a transitional phenomenon and in future selection committees will find suitable staff from non-government and private sector also. This is necessary if ERCs would want to understand better the working of private sector suppliers. ERCs' engagement with the think tanks and higher educational institutions to tap the capabilities from civil society, private sector has been hardly visible.

The Act provides for independence of the Chairman and Members by protecting their appointments for a fixed tenure during which the chances of arbitrary removal of a



Chairman or Member are minimised. In the four ERCs where I conducted interviews it was found that in none of those ERCs a Chairman or Member had been removed before their term was completed or they attained maximum age as specified in the Act.

### **3.3 Staff on Deputation**

In the surveying of staff position and vacancy announcements by the ERCs it is clear that most of the staff working the ERCs is on deputation from the Central government in case of CERC and from the state government in case of SERC. There are few implications of this arrangement of sourcing human resources for ERCs.

First the tenure of deputed staff in the ERCs is for a fixed period of, in most cases, 5 years. Perhaps one of the reasons for resorting to this arrangement could be lack of trained manpower from outside government sector. But this seems unlikely because here is enough relevant skills and talent base in law, economics, management and engineering in private sector industries and other institutions in the country. A consequence of deputed staff is that it does not provide opportunity to the ERCs to invest in some core capabilities within the organisation which can be of long term value to the regulatory practice. By the time deputed staff members get experience in dealing with the regulatory matters they might move back to their parent department or ministries along with the expertise and knowledge about the regulatory issues. On raising this questions during the interviews with secretaries of the commission, one of the response was that the expertise developed by individuals working in ERCs could be ‘institutionalised’ as best practice and therefore there was no problem in having a floating staff in ERCs. In a report done by Prayas Group commentators argue in the same vein saying that ‘*ERC staff should not be permanent but only on contract (if not on deputation) for up to five years at a time.*’ (Prayas Report,2003, p.7). In another interview at a SERC when I asked whether so many vacancies and shortage of staff came in the way of the SERC’s functioning, the response was that the commission uses consultants’ services in many matters including analysis of the information submitted by the regulated entities. Use of consultants is quite common in the ERCs. This practice indicates that ERCs do not have adequate in house capabilities

and it seems to be a conscious decision based on the argument that it is more economical than having full time long term staff on payroll of ERCs.

However, the author would differ on this issue of long term staff versus deputed or contracted staff. First it is not easy to get people even on deputation. Suppose CERC identifies need for recruiting someone on deputation, the process for approval is as tedious as creating a post in Central government. The relevant file will move through various levels and departments like Law, Department of Personnel and Training, Finance and so on. The matters become complicated when staff joins CERC for example from a government ministry. Now since CERC and government ministry are not identical in their nature some of the terms and conditions of employment in CERC differ from that of the ministry. This might be minor issue for employers but it is not minor issue for the employee. To attract good staff from the government departments ERCs will have to match the remunerations and other perks and benefits or even offer better than those offered by the government. But this will not be easy for ERCs given that their funding depends on getting approval from the government again.

Given the complexity of electricity regulation, which is bound to increase with passage of time as the industry gets privatised more and markets develop, it seems difficult to defend argument that a floating deputed pool of human resources from government, supported by occasional consultants, will be adequate in long term to determine tariff, oversee compliance with tariff orders, monitor the standards of services in what is clearly an industry where information asymmetry will be there. Even to perform their functions, particularly advocacy and inviting participation of the stakeholders, staff consultation papers from the ERCs can be important source of regulatory knowledge that could be generated by the ERCs. Such expectations from ERCs are unlikely to be met with successfully with limited stable human resources. Key point is if regulatory practice can not be offered as a career choice to bright young professionals the field will be manned by retired and or unsure deputed staff.

### **3.4 Funding**

One of the key determinants for operational independence and effectiveness of the regulatory commissions is the ways they are funded. The ERCs are funded by their respective state governments and are accountable to them. The commissions were not allowed to collect any revenue and therefore, the entire resources were limited to the budgetary grant charged to the Consolidated Fund of the States. Recently, however, the enactment of Electricity Act, 2003 made possible the establishment of State Electricity Regulatory Commission fund to be constituted from (a) any grants and loans made to the Commission by the State Government; (b) all fees received by the Commission under this Act; (c) all sums received by the Commission from such other sources as may be decided upon by the State Government. This arrangement would enable the Commissions to sustain themselves through their own fund, a clear departure from the present system of dependency on Government funding. Despite this change in funding, however, it is too early to see the extent of the financial autonomy enjoyed by the ERCs and its consequences.

### **3.5 Regulatory Information: A key for effective regulation and its Accountability**

The regulatory effectiveness in tariff determination and improving the efficiency of the electricity supply industry critically depends on the quality of the information that is available about various aspects of the electricity industry not only with the ERCs but also in public domain, particularly with the civil society organisation, consumer organisations and other stakeholders. ERCs need information about the revenue and capital costs of the regulated suppliers, cost of capital, and other financial information, to compare and analyse the figures submitted by the suppliers while negotiating the annual revenue requirements and tariff determination. In addition to ERCs however, civil society organizations and other interested groups such as consultants and academics would also be interested in financial and technical information about the individual suppliers and the industry as a whole to form their opinion. Hence it is imperative that uniform regulatory information databases are created and available in public domain.

The present status on the information quality and availability is far from satisfactory. A survey of websites of the ERCs reveals that from the 20 state electricity regulatory commissions set up by 2006, 19 SERCs (except Goa) have set up their Internet websites. Apart from the similarity in terms of constitution of the commission, there are wide differences in the way information is presented on these sites. The commissions' websites information on functions of the organisation, their profile, activities, some licensee details and links, information on consumer issues and links to some relevant external websites. In most cases the downloadable information includes:

- Various regulations: procedures, terms and conditions for granting distribution licenses, procedures, terms and conditions for granting Intra-state trading license; terms and conditions for determination of tariffs and tariff orders; distributions licensee's standards of performance. However, except in few cases like CERC and Karnataka SERC, in most cases the orders and regulations are not classified making it difficult to make sense of the nature of orders and understand the scope of work being done by the SERCs.
- Others include: distribution code, grid code, conduct of business, transmission licensees' standards of performance; distribution metering code; electricity ombudsman
- Reports and surveys in very few cases only. It is clear that some of the reports were commissioned in the early years of ERCs. There is no periodic report on the industry status or trends in prices. One has to open each tariff order to find comparative prices from one period to another. It was not easy to find the tariff charged by different utilities in different states. One source where such data could be found was on Central Electricity Authority.
- Acts and policies (rules)
- Annual reports: Annual Reports may be expected to provide most appropriate information that could be used to analyse the performance of individual ERC and indeed compare them ERCs. But like many government entities, most ERCs seem to be falling behind schedule to prepare their own Annual Report and make it available on the websites. It is possible that in some cases annual reports are printed but not put up on the websites.

- Information on consumer services and consumer advocacy
- Advisory committee minutes in some cases.
- Power data and Statistics (in some cases- Karnataka and Madhya Pradesh)
- Discussion papers, publications (in some case- Madhya Pradesh)
- Draft regulations, draft orders, petitions

Overall the information availability on the industry and on the regulation of the industry is not uniform across the country. This makes it very difficult to analyse the performance of the industry and regulators across time and space. This has significant implication for practice of regulation be it tariff determination or monitoring performance of the technical standards. In distribution segment for example, Indian regulators should be in ideal position to benchmark the performance of distributors by comparing the cost structure of different distributors not only within a state but also with that of distributors from other states. Similarly potential cost savings in other segments can be identified through meaning comparison using rigorous parametric or non-parametric efficiency measurement methods. But all this depends on timely, good quality information which at present is scattered and not in uniform format. CERC and SERCs can lead in performing this function and putting the information to use and also to it in public domain. Even among locally monopolistic distribution companies *yardstick competition* can be simulated by regulators with effective use of information during the regulatory process to which we turn to in the following section.

#### **4 Regulatory Instruments and Processes**

As discussed in section 2 above the scope of regulatory functions of ERCs envisages multiple roles. On economic side ERCs are expected to ensure tariff of electricity are rationally determined reflecting the cost of supply at the same time they are expected to phase out cross subsidies and also to facilitate competition in generation and bulk supply markets. In addition to this ERCs adjudicate in case of disputes between the suppliers, reconcile the interests of various consumer groups during tariff determination. The ERCs take judgments which are essentially ERCs opinions on redistributive consequences of differential pricing as we show below.

The discussion in this section is divided into two parts. In the first part we discuss various instruments or decision tools that ERCs use. In the second part we examine the process of regulation in more detail.

#### **4.1 Economic and non-economic instruments**

ERCs issue licenses for transmission and distribution. In this way ERCs play role in encouraging competition. They also determine tariffs for distribution, bulk supply, wheeling charges and decide in prices and other terms in power purchase agreements between distributors and generators. Some of the regulatory instruments are as follows:

1. Aggregate revenue requirements (ROA) in all states
2. Requiring licensees to submit audited financial statements annually and interim profit and loss account, cash flow statements, funds flow statements and provisional balance sheet in respect of the first six months (Delhi)
3. Use of Rate of Return based Regulation (Cost of Capital), RPI – X Regulation, Profit Sharing Regulation and Revenue Cap (Haryana)
4. Use of 16% ROE and 7% depreciations to encourage investment (Karnataka).
5. Specifying the terms and conditions for the determination of tariff are guided by the principles contained in section 61(a) to (i) of the Electricity Act, 2003 (all states)
6. Established consume grievance redressal forum and ombudsman ( all states).

ERCs are empowered to encourage use of non-conventional energy sources and they may levy appropriate fees for licenses or hearing of tariff and other petitions. ERCs could also impose fines to ensure compliance with their orders. Thus we see that ERCs are empowered to use wide variety of ways in to perform their functions. However, the most important perhaps would be tariff determination and promotion of competition. We discuss tariff determination process in detail in second part below but note that so far the success of ERCs in creating or promoting competition in the industry has been almost negligible. Primary reason for this has been continued ownership of the industry by government. For example, poor financial condition of state distribution companies does not make investment by private sector in generation attractive as the state distribution

companies can not provide the guarantee for payment. Compare this with Central power generators who have tripartite agreements involving state distribution companies, state government and the Reserve Bank of India which provide for payment security to Central power generators. So if we were to ask question whether ERCs have provided environment of credible commitment to investors for investing in generation or distribution, the answer based on the experience of actual investment in generation, other than captive generation, is no. There are few exceptions in Gujarat where some investment has been made by existing private sector generators in Ahmedabad and Surat.

#### **4.2 Tariff Determination Process: Can tariffs mimic competitive rates?**

The tariff determination process spans over months of petition submissions, information exchange, analysis, negotiations, hearings and decision making on part of the regulators and regulated entities. It also involves inviting stakeholder comments, objections, expectation of consumers on tariff adjustments.

As an illustration the Maharashtra ERC decision making process is presented in the following table 1.

<b>Phase 1</b>	<b>Phase 2</b>	<b>Phase 3</b>
Public Hearings	Public Hearings	Tariff Order
Technical validation session Assess utility proposal Call for clarifications Call for public hearings Consultants' inputs Expert's verification	Issue public notice Invite objections Conduct public hearings Tabulate objections Call for clarification from Utility Call for response from Utility to objections Call for rejoinders on Utility response	Reconcile viewpoints Develop models Prepare speaking order Issue detailed order

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Source: Adapted from the Maharashtra ERC Annual Report 2000/2003.

This determination of is done on annual basis which essentially requires judgment of ERCs on following three economic issues:

- Operating expenses for running of business (distribution or transmission for example)
- Capital expenditure requirements and asset base to be allowed for rate of return on investment
- Reducing Transmission and Distribution(T&D) losses. Very high level of T&D losses in India include substantial loss of energy during transmission due to poor condition of transmission and distribution network as well as theft of electricity from the system.

The reading of tariff order by any ERC reveals many interesting aspects of regulatory practice. First thing which is worth noting is that each tariff order usually runs into about 175-200 pages. There is item wise comment and querying on the justification of projected expenses, forecast capital expenditure and other assumptions that the licensee has used in the projections for next year. The exercise appears almost like a budget approval of a government department. Tricky issues of asset base require judgement on the purchase costs, replacement costs, depreciation rates and appropriate cost of capital. Issues of asset base and cost of capital are thorny issues in finance even in the private sector listed companies where accounting information and financial position of firms is far more clear compared to public sector accounting and financial systems. Quality of information used in the tariff determination process takes us back to the point made earlier about need for better quality information. In some cases reading of tariff orders (for example, in case of some orders issued UP ERC) suggests that publicly owned distribution companies do not provide timely and adequate information, practically sabotaging the regulatory process and ERCs can do little other than extend the deadlines.



Given the huge losses in T&D, ERCs have been setting targets to reduce the T&D losses. However, as mentioned above these losses include substantial components of theft of electricity. Technical solutions like putting meters on all connected properties and other solutions to detect problems by better monitoring at feeder transformer level can help. But distribution companies and regulators can do little if back law and order machinery is not adequate to realise the dues from unscrupulous users. The collection personnel need police protection for meter reading or disconnecting the supply of defaulters. Such legal and institutional arrangements that supplement the efforts of ERCs are equally important to ensure the implementation of regulatory orders.

ERCs are also expected to make judgement on issues of redistribution. Consider for example Tamil Nadu SERCs was approached by Youth Hostels to reduce their tariffs to concessional rates charged from educational institutions because they provided various educational, training and accommodation services to students<sup>7</sup>. This is expanding the scope of ERCs to take redistributive decisions as effectively in this case the ERC has taken a decision on the definition of who are the beneficiaries for subsidies. This mixes up the regulatory role with that of political decisions taken by government in case of agricultural and domestic consumers for example.

In sum it can be said that tariff determination by ERCs requires capabilities to form technical and financial judgements on multiple aspects of performance of licensees. This is a difficult and imprecise process requiring competent people and as we said above if the objective is to benchmark the performance of licensees against best practice the task becomes more challenging justifying the need for internal long term capabilities.

At national level, Electricity Act, 2003 laid the foundation for new unbundled power sector functioning in a competitive environment. Because of this the Central Electricity

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<sup>7</sup> TN SERC Order No T.O. 1 - 76 dated 02/03/2006

Regulatory Commission made clear some expected changes in regulatory instruments effective from 1st April 2004 (CERC, 2004) for generation and inter-state transmission. All projects and investments in generation, transmission and distribution both by public sector utilities as well as IPPs should be structured through a tariff-based transparent competitive bidding process rather than the existing 'cost plus approach' so that the benefits of increased efficiency are passed to the consumers. During the period of transition to a competitive bidding regime, tariff regulations as far as practicable, should move away from the 'cost plus actual' approach, to a new regime of light-handed regulation based on normative parameters. The changeover from intrusive regulation involving detailed scrutiny of actual costs to a lighter regime of normative parameters is the distinctive features of the new regulation. Furthermore, the Act envisages that the tariff parameters should encourage competition, efficiency, and economical use of resources, good performance and optimal investments, while safeguarding consumer interests. One has to wait and watch for reality to emerge.

##### **5. Regulatory performance and accountability:**

We have been making observations about the regulatory performance through out the discussion above, mostly focusing on the implications of regulatory practice on the development of competition in the electricity markets. Here we briefly discuss the issues of governance aspects of ERCs. Levy and Spiller (1994) in their seminal paper argued that institutional aspects of regulation need equal attention if the regulatory reform has to be effective in creating and sustaining environment for attracting and retaining private investment. Institutional arrangements for practice of regulatory policy play a key role in providing stable and effective regulatory environment. Levy and Spiller (1994) provide empirical support for their arguments in their study of national institutional endowments and telecom regulatory institutions in five countries. Subsequently the analytical framework has been used by Stern and Holder (1999) to study regulatory governance in developing countries of Asia. Pereira et al (2006) used a further revised instrument to measure regulatory governance index (RGI) in their study of regulatory institutions in Brazil. Main argument of these studies is that regulatory agencies meeting the criteria of

good regulatory governance (see box 2 below) are likely to be more effective and efficient than otherwise. Almost carrying the same logic and approach Prayas Group published a report in 2003, based on survey of ERCs highlighting resources, transparency and public participation in the working of ERCs.

**Box 2: Criteria for Regulatory Governance and Best Practice Definitions**

The formal accountability aspects include:

1. **Clarity of Roles and Objectives:** The regulatory function is well articulated, well enshrined in primary legislation, and clearly separated in practice from policy and commercial functions.
2. **Autonomy:** There is a separate regulator with arrangements for appointment and financing which appear to guarantee autonomy of action.
3. **Participation:** A comprehensive process of formal consultation (including public hearings and publication of and comment on consultation responses) is followed before decisions are made.

The informal accountability aspects studied are:

4. **Accountability:** There is full accountability in terms of appeals, including a specific legal right of redress. The accountability of the regulator to Courts or parliament for fulfilling general legal duties is appropriate without being excessive.
5. **Transparency:** All regulatory documents are available to the public, except where specifically classified as confidential and the regulator publishes major decisions as well as the reasoning behind major decisions.
6. **Predictability:** Regulatory powers and duties cannot be changed without changes in primary law; key regulatory instruments or documents cannot be changed without undergoing appropriate processes; and there is a clear policy and coherent approach behind all decisions.

*Source: Stern and Holder, 1999, p.45.*

The author collected information from four ERCs using a semi-structured questionnaire which as well as from websites of ERCs and the relevant Acts. All of the above criteria have been commented upon in the earlier sections of the paper suffice it to say Indian ERCs will be ranked quite high on first three criteria and also on transparency. In terms of accountability they are exposed to powers of Appellate Tribunal for Electricity and they are also to report annually to the government on their performance.

Stern and Holder (1999) mention that a good practice on predictability requires that regulatory powers and duties cannot be changed without changes in primary law; key regulatory instruments or documents cannot be changed without undergoing appropriate processes; and there is a clear policy and coherent approach behind all decisions. The Electricity Act, 2003, lays down in detail the regulatory procedures and empowers the commissions to make appropriate rules as well. However, the autonomy and predictability of the commission could be threatened in case government decides to use its power to issue directions. Section 107 of the Electricity Act provides for such powers and reads as,

*“ (1) In the discharge of its functions, the Central Commission shall be guided by such directions in matters of policy involving public interest as the Central Government may give to it in writing.*

*(2) If any question arises as to whether any such direction relates to a matter of policy involving public interest, the decision of the Central Government thereon shall be final.”<sup>8</sup>*

While the central government has not issued policy directions that have interfered with the working of CERC, there have been instances at the SERC level where state governments have issued such directions that have effectively interfered with regulatory decisions of the commissions. Except for the above potential threat to predictability so far the ERCs' orders have been accepted in most cases by the licensees. But this is tentative statement as more rigorous analysis of the challenges to tariff orders and court cases has

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<sup>8</sup> The Electricity Act, 2003, Section 107.

to be carried out before passing judgment on predictability of regulatory commissions in India.

## **6 Summary**

The reformed electricity markets and electricity regulation are in their learning stage. The newly created state utilities are struggling to cope with changed institutional framework and face challenge of adapting to commercial culture of private enterprises in a regulated environment.

The unbundling, where done effectively with separate corporate entities created out of erstwhile state electricity boards, has partially helped as one of the interviewees, a secretary of a SERC said, that separation of distribution, transmission has brought in more accountability and is yielding results in identifying the problem areas. New regulatory arrangements have met with little success in creating competitive markets but it is more due to factors beyond their control namely; very poor financial position of state owned distributors making them unattractive customers for private generators who are not forthcoming to invest. Competition in distribution segment is not envisaged at this stage given that the technical and market mechanisms for electricity trading, metering, time of the day metering, availability based tariffs are still not in place. Perhaps bigger than these hurdles will be the hurdle of political commitment which is required to provide better legal framework to reduce electricity theft and keep up the payments to distributors to recover the subsidies and help improve the financial performance of the state utilities.

With few exceptions, majority of the state commissions don't seem to have sufficient number of skilled and trained personnel and most of them are dependent on deputation from other utilities or government departments. This issue becomes more daunting for developing India as studies go on suggesting that it is difficult to provide a fully effective *decision-making* regulatory capability with fewer than 30–40 staff (Buckle, 1999; Domah et al. 2002). As India is striding with its power sector development policy

including with the increased private investment and competitive arrangement, the challenges for regulatory commissions are likely to mount. There are considerable fixed costs associated with establishing license (or concession) approval, monitoring and enforcement procedures, particularly where they are subject to enforcement and/or appeal in the law courts. Beyond these fixed costs, regulatory staff requirements seem to depend primarily on the number of companies to be regulated and then on the complexity of the competitive arrangements in the sector. Both these factors are likely to change in India. However, previous studies show that both the public sector licensees and the State Governments in many cases have not been very cooperative to ERCs in ensuring compliance with the processes, requirements and conventions that underpin effective and independent regulation – including requirements of the law and legal process (Prayas Report, 2003).

Over all, the state regulatory commissions are dependent on government resources (funding + staff deputation). Even though the Electricity Act 2003 is likely to increase the financial autonomy of these commissions by way of establishing electricity regulatory commission fund, its effect (in terms of raising the requiring amount of financial resources) is not yet known.

Few suggestions that could help improve practice of economic regulation in developing countries such as India are:

1. ERCs must undertake programme of standardising the reporting format for licensees as soon as the regulatory bodies are created. Uniform regulatory information on all aspects of electricity supply industry available from one source could go a long way in improving the transparency and accountability of regulatory commissions.
2. The recruitment and training of regulatory commissions' staff must reduce reliance on the government and its agencies. Adequate and long term appointments for professional staff should be made.

3. The ERCs must engage with civil society think tanks and academia to better understand the economics of electricity supply industry at state level. Where size of electricity markets is large and there are number of regional suppliers principles of *yardstick competition* can be applied in regulation for tariff determination as well for setting performance standards. This is possible only when comparative rigorous analysis of reliable data is done. Indian regulators are in ideal situation on this count.
4. There is need for more collaboration among the regulators. The setting up of Forum of Electricity Regulators in India is good beginning but it needs to have clear applied research agenda as well as training agenda. Important output from the Forum could be informed analysis of political impediments in the practice of effective regulation.
5. However, compared to 4 above a more radical suggestion is to think of regional regulatory regimes rather than one for each state. Already in north-east India there is one such experiment which is perhaps driven by the small size of the states involved. But there is an opportunity to combine state regulatory agencies in a more rational way or geographically East, West, South, North and Central for example. In higher education sector All India Council for Technical Education and University Grants Commission, both regulatory bodies, are organised in regional format. The advantages of regional regulators would be many. There will be some economies of scale in the operations for regulators affording better human and infrastructure capabilities. The pool of information and knowledge will provide opportunity for benchmarking the different regulated companies. Regionalisation might eventually result in more independence for regulators if no one state government will have sole powers to appoint the regulators. Regulatory accountability could also be more transparent if the regulators are accountable to more than one legislature.
6. There is also need for collaboration among sectoral regulators. There are important linkages between electricity regulation and other energy sectors such as oil, gas and coal sectors. Now there is enough evidence from the regulatory experience in the UK that gas and electricity regulation can be managed through

same regulatory regime. It would make eminent sense for any developing country to think through all the options on regulation available to them before hurrying to create different regulators for different parts of the energy supply chain.



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Internet websites of various ERCs

<b>Appendix 1: Summary of various functions of ERCs<sup>9</sup></b>	
<b>Functions</b>	<b>Observed</b>
<ul style="list-style-type: none"> <li>▪ Determine the tariff for generation, supply, transmission and wheeling of electricity, wholesale, bulk or retail, as the case may be, within the State: Providing that where open access has been permitted to a category of consumers under Section 42, the State Commission shall determine only the wheeling charges and surcharge thereon, if any, for the said category of consumers;</li> </ul>	Assam, Delhi, Gujarat, Haryana, Karnataka Maharashtra, Orissa, Rajasthan + all other states
<ul style="list-style-type: none"> <li>▪ Regulate electricity purchase and procurement process of distribution licensees including the price at which electricity shall be procured from the generating companies</li> </ul>	All
<ul style="list-style-type: none"> <li>▪ Promotion of competition, efficiency , economy and safety in activities of the electricity industry;</li> </ul>	All
<ul style="list-style-type: none"> <li>▪ Facilitate intra-state transmission and wheeling of electricity;</li> </ul>	All
<ul style="list-style-type: none"> <li>▪ Issue licenses to persons seeking to act as transmission licensees, distribution licensees and electricity traders with respect to their operations;</li> </ul>	All
<ul style="list-style-type: none"> <li>▪ Adjudicate upon the disputes between the licensees, and generating companies and to refer any dispute for arbitration;</li> </ul>	All
<ul style="list-style-type: none"> <li>▪ Specify or enforce standards with respect to quality, continuity and reliability of service by licensees;</li> </ul>	All
<ul style="list-style-type: none"> <li>▪ To collect data and forecast on the demand for and use of electricity and to require the licensees to collect such data and forecast;</li> </ul>	Delhi, Gujarat, Haryana , Uttar Pradesh
<ul style="list-style-type: none"> <li>▪ Levy fee for the purposes of this Act; specify State Grid Code consistent with the Grid Code specified under clause (h) of sub-section (1) of section 79;</li> </ul>	All
<ul style="list-style-type: none"> <li>▪ To regulate the working of the licensees and to promote their working in an efficient, economical and equitable manner;</li> </ul>	All
<ul style="list-style-type: none"> <li>▪ Reorganization and restructuring of electricity industry in the State; advise state on matters concerning generation, transmission, and distribution and trading of electricity or any other matter referred to the State Commission by the Government.</li> </ul>	All
<ul style="list-style-type: none"> <li>▪ To set appropriate code of conduct and standards for the electricity industry in the State;</li> </ul>	

<sup>9</sup> Source: Websites of ERCs and the relevant electricity reform acts, Electricity Act, 2003.

<ul style="list-style-type: none"> <li>▪ Establishment of Grievance Redressal Forum &amp; Ombudsman, for handling consumer complaints,</li> <li>▪ to regulate the purchase, distribution, supply and utilization of electricity, the quality of service, the tariff and charges payable keeping in view both the interest of the consumer as well as the consideration that the supply and distribution cannot be maintained unless the charges for the electricity supplied are adequately levied and duly collected;</li> <li>▪ To promote competitiveness and progressively involve the participation of private sector, while ensuring fair deal to the customers;</li> <li>▪ To regulate the assets, properties and interest in properties concerned or related to the electricity industry in the states including the conditions governing entry into and exit from the electricity industry in such manner as to safeguard the public interest;</li> <li>▪ To require licensees to formulate perspective plans and schemes in coordination with others for the promotion of generation, transmission, distribution and supply of electricity;</li> <li>▪ To refer, if the Commission deems appropriate, matters to agencies and bodies dealing with consumer disputes, restrictive and unfair trade practices and management and administration of the affairs of the licensees;</li> <li>▪ Formation of State Advisory Committee, Co-ordination Forum &amp; District Committee.</li> <li>• Establishment of Special Courts and separate police stations to check power theft.</li> <li>▪ Promote cogeneration and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution license</li> <li>▪ To co-ordinate with environmental regulatory agencies and to evolve policies and procedures for appropriate environmental regulations of the electricity sector and utilities in the State and</li> </ul>	<p>All</p> <p>Gujarat, Haryana, Orissa, Rajasthan, Uttar Pradesh</p> <p>Delhi, Haryana, Orissa</p> <p>Delhi and Haryana, Uttar Pradesh</p> <p>Gujarat, Haryana Orissa, Uttar Pradesh</p> <p>Gujarat</p> <p>Delhi</p> <p>Delhi</p> <p>Haryana, Karnataka, Rajasthan</p> <p>Uttar Pradesh</p>
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