

# Many Sparks but Little Light: The Rhetoric and Practice of Electricity Sector Reforms in India

Prayas (Energy Group)



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#### **About Prayas**

Prayas - Initiatives in Health, Energy, Learning and Parenthood, founded in 1994, is a non-governmental organisation based in Pune, India. Members of Prayas are professionals working to protect and promote public interest in general, and interests of the disadvantaged sections of society, in particular. Prayas is registered as a Scientific and Industrial Research Organization with the Department of Scientific and Industrial Research, Ministry of Science and Technology, Government of India.

Prayas (Energy Group) works on regulatory and policy aspects of energy and electricity sectors. Our aim is to make energy a tool for sustainable and equitable development for all citizens. Our work includes evidence-based analysis, discourse building, and policy and regulatory engagements with a public interest focus. Outputs of Prayas (Energy Group) include innovative analysis reports, guides, tools, and policy and regulatory submissions. We contribute to the energy sector through our outputs, participation in official committees constituted by ministries, NITI Aayog and Regulatory Commissions, as well as our association with many civil society organisations and networks. For more details and accessing our publications, please visit our website: [www.prayas-pune.org/peg](http://www.prayas-pune.org/peg).

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*Dedicated to*

**Girish Sant**

*(1966 – 2012)*

*Founding coordinator of Prayas (Energy Group)  
who continues to inspire our work*



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## Foreword

Prayas (Energy Group) or, in its abbreviated form, PEG is a non-governmental, non-profit organisation based in Pune (India), active since the early nineties. It comprises of young professionals deeply committed to protecting and promoting the public interest in the energy sector, especially the interests of the disadvantaged sections. Its strength lies in its ability to analyse complex policy issues and, on that basis, undertake advocacy on behalf of the consumers.

PEG first established its credibility as a competent consumer-oriented NGO when it undertook an incisive analysis of the electricity demand trends in Maharashtra in 2001 and highlighted the technical and financial implications of the infamous Enron power project. The Expert Committee constituted by the State government to deal with Enron, of which I was a member, benefited a great deal from the professional evidence provided by PEG. Since then, PEG has grown from strength to strength, first as a group involved primarily with independent regulation in the electricity sector and later graduating into regulatory issues concerning the upstream fuel sectors, namely, coal and natural gas. PEG has done seminal work in electricity demand management and, more recently, involved itself in being a constructive critic of the policy aimed at developing renewable energy resources. All these different initiatives have taken PEG into the realm of domestic research on global climate concerns.

It is against this background that PEG has rightly chosen to take a pause and look back at the way energy policy has evolved over the decades and review the gaps in policy that still need to be covered. This publication has been the outcome of that effort.

The complexity of the energy sector arises from the fact that energy is both an intermediary input in the development process, as well as a final product that adds to the quality of life. While electricity has indeed contributed significantly to the process of economic development over the decades that followed Independence, it is worrisome that it has hardly reached only 67% of the country's households. Around 86% of the rural households still use traditional biomass fuels for cooking, which lie outside the energy markets of the country. Considering that the majority of the households have low incomes and, therefore, cannot afford to buy market-priced fuels, policy makers have the daunting task of balancing market reform with subsidies.

In this publication, PEG has comprehensively covered the reform trajectory since 1991 in each of the sub-sectors of the electricity and allied fuel sectors. The

publication covers not only the twists and the turns in the path of reforms but also their impact in terms of consumer benefit.

One would expect economic liberalisation to imply lesser government presence, greater independent rule-based regulation and enhanced competition, both domestic and global. Liberalisation was expected to enhance resource use efficiencies and help the consumers. Of course, there is always a gap between rhetoric and practice.

As far as the electricity sector is concerned, some segments of it, such as distribution, are not readily amenable to competition, though major initiatives have been taken to unbundle the sector to expose it to competition wherever feasible. In order to facilitate the entry of private investors, therefore, it is necessary to have apolitical, professional regulators to protect the interests of the consumers. Such an independent regulatory environment is yet to evolve satisfactorily in our country.

Though competitive price determination has made a modest beginning in the electricity sector with commensurate consumer benefits, with the public sector utilities continuing to dominate the sector, electricity regulation is still based largely on pricing that allows a reasonable return over and above normative costs. The fuel costs are dependent on the extent to which they are regulated in the upstream coal and natural gas sectors. Both coal and natural gas prices continue to be largely administered, leaving little room for the electricity regulator to bring visible benefits to the consumers. Private players in coal mining were restricted till recently to a few captive coal miners and competitive block allocation has just started. Though private players were allowed decades ago to enter hydrocarbon exploration and development activity, the government is yet to develop its capacity to manage and enforce the hydrocarbon production sharing contracts satisfactorily. As a result, natural gas development in the franchise areas stagnated and the electricity sector witnessed serious gas shortages that affected power supplies in the southern region.

In the case of both electricity and natural gas, attempts are being made to separate the producers from the common carrier transmission systems so as to create greater scope for competition to benefit the consumers. There is a long way to cover in this direction.

There are three major waves of change that are sweeping the energy sector globally. The first is the collective effort to contain global warming that is caused by the use of fossil fuels. Being a signatory to that global effort, India needs to reorient its own energy policy to be in tune with it. The second is the technological change that is bringing down the cost of renewable energy and introducing cleaner

technologies that are being developed to mitigate the adverse effects of fossil fuel use on the climate. During the last few years, India has taken major strides to take advantage of these trends. Lastly, civil society activism against local environmental degradation caused by large energy projects has been on the increase. It is therefore no longer easy for the government to pursue the traditional supply-centric strategy of adding new production capacity in preference to managing the demand. The energy sector reform trajectory in India is bound to react to these changes in a significant measure.

As in any other sector, there are numerous stake holders with competing interests in the electricity sector. Electricity sector policies necessarily seek to balance these interests. This adds a political dimension to the formulation of electricity policy.

This book, “Many sparks but little light”, traces these developments in electricity sector policy evolution in considerable detail, tracks the conceptual trends in a highly analytical manner and identifies the gaps in reform for the consideration of the policy planners. One common thread that runs throughout this narration is the emphasis on deepening public accountability as the overarching objective of any change that the policy planners may contemplate.

There have been several books written by scholars and researchers on individual sectors of energy and the energy sector as a whole. However, very few of them are written by those who have had the benefit of interacting closely with the consumers and the policy planners in an equal measure. PEG’s “Many sparks but little light” belongs to the latter category. To a policy planner, this publication can provide useful insights on the direction in which they should proceed in the coming years. To a researcher, it opens up new areas for academic investigation. To those involved in promoting consumer interest, it points to gaps which need to be bridged through consumer activism and a democratic pressure on the government to make the necessary changes.

In all, Prayas has made a great effort in bringing out this useful publication. It certainly bears the signature of Girish Sant who had visualised the institution of PEG.

Dr. E. A. S. Sarma



## Preface

The year 1991 was an inflection point in the history of modern India. Beginning this year, the Indian economy was subjected to fundamental structural changes in response to a balance of payments crisis. Based on suggestions and conditions from international agencies, India embarked upon wide-ranging economic reforms in what came to be known as the liberalisation, privatisation and globalisation or LPG era. The fundamental thrust of the LPG era was on reforms to reduce the role of the government in many sectors, encourage private investment in its stead, reduce restrictions on capital flows and thus attract international players, capital investment and current technology. It was claimed that these reforms would introduce structural changes in the economy and increase efficiency, thus resulting in faster growth. In turn, the economic growth was expected to help address the balance of payments crisis and help pull many Indians out of poverty.

The electricity sector — indeed, the entire energy sector — was mostly controlled by the government in the early 1990s, and continues to be a highly capital intensive sector. It was also a fiscally strained sector suffering from a shortage of supply. For all these reasons, it has been a major target of multiple waves of reforms during this period. For example, the private sector was invited to participate in electricity generation, electricity boards were unbundled and corporatised (with some even being privatised), oil and gas exploration and production were opened up to markets and competition, and the coal sector experimented with allocation of coal blocks for captive consumption. In the electricity sector, the guiding principles of reforms were emphasising markets rather than centralised planning, globalisation rather than self-reliance, and treating electricity much more as a saleable commodity rather than as an important input to human development.

Over the years, there have been many analyses, opinions and critiques of reforms in the electricity sector. In 2000, the independent energy analyst Abhay Mehta published a critique of the reforms in his book *Power Play: A Study of the Enron Project*. This book focuses on the infamous Dabhol power project to bring out the many issues pertaining to the ‘Independent Power Producer’ approach. Joel Ruet, a specialist in emerging economies, authored and edited four books between 2002 and 2006 titled *Against the Current* (Volumes I, II and III) and *Privatising power cuts*, which focus on the restructuring of Indian State Electricity Boards (SEBs). In these books, he teased out different perspectives of SEB restructuring and the Electricity

Act, and covered issues such as reform experiences in some states, challenges in agriculture, better management of distribution, and options to improve the working of SEBs. The Indian Institute of Public Administration published a report titled *Study on Impact of Restructuring of SEBs* for the Ministry of Power in 2006 which has case studies of twelve states and makes several observations and suggestions about the reforms process. This report points out that while restructuring was necessary, it was not sufficient to improve the sector, and notes that restructured utilities were still not professionally managed which limited their efficiency.

Navroz Dubash, an expert on governance and political economy of energy, and Narasimha D Rao, an expert on energy systems and human development, authored the 2007 book *The Practice and Politics of Regulation: Regulatory Governance in Electricity*, which studies electricity regulators in three states of India, and examines the challenges faced in institutionalising these supposedly independent new agencies. Ajay Pandey and Sebastian Morris of IIM Ahmedabad published a report titled *Electricity Reforms and Regulations: A Critical Review of the Last Ten Years' Experience* in 2009 for the Forum of Regulators. This report makes the point that while the reforms have had major impacts, they did not necessarily take steps in the intended direction, and that the main problems of leakages, viability of distribution, tariff reform and competition still remain unaddressed. *Powering India: A Decade of Policies and Regulation* edited by S. L. Rao, former chairperson the Central Electricity Regulatory Commission, was published in 2011 and analyses crucial policy reforms in the electricity sector over the last decade.

The 2014 book *Electrifying India: Regional Political Economies of Development* by Sunila Kale, Associate Professor at the University of Washington, analyses the electricity sector from a political economy lens and provides an excellent narrative of the developments in the sector from this perspective. The World Bank published a series of four reports in 2014 and 2015 titled *Private Participation in the Power Sector: Lessons from Two Decades of Experience*, *More Power to India: The Challenge of Electricity Distribution*, *Governance of Indian State Power Utilities: An On-going Journey* and *Beyond Crisis: The Financial Performance of India's Power Sector*. The gist of these reports is that while some aspects, such as generation privatisation, adding grid-connected solar and a few experiments with franchisees and distribution privatisation have worked well, many other aspects such as distribution utility governance and finances, rural access and quality of supply, regulatory autonomy and effectiveness, public availability of high quality data, and efficiency of upstream generation have a long way to go. This list of analyses and critiques of electricity

sector reforms is by no means exhaustive. For example, the pioneer of appropriate technology, Amulya Reddy and his colleagues published many articles in the Economic and Political Weekly in the 1990s. Authors from Prayas (Energy Group) have also written many articles on various aspects of the reforms through the 1990s and 2000s.

It has been a quarter century since the beginning of the reforms, as evidenced by a spate of opinion pieces and newspaper articles in July 2016. There are indications that a fresh wave of reforms are in the offing in the electricity sector, such as separating ‘carriage’ and ‘content’ in electricity and introducing commercial mining of coal. The sector is also buffeted by major technological changes which are resulting in rapidly falling renewable energy prices, which is likely to lead to seismic changes not only in the economics of the sector but also its very structure, because of an increased role for aspects such as on-site generation, electric vehicles and affordable storage. Increasing concerns about environmental implications of energy, including climate change, are also drawing policy responses from governments around the world including the Indian government. It is therefore an opportune time to review the reforms so far and see whether they succeeded in achieving their objectives and desirable social and environmental goals. A better understanding of the reasons behind their failure or success can help to shed light on informing future reforms in the sector.

That is the primary motivation in writing this book. It attempts to critique the major reform experiments of the past — defined as those which could have had a significant impact on the sector. The lessons thus learnt can help to improve the design and implementation of further reforms, so that the sector overcomes its challenges in an equitable and sustainable manner. It is also important to be clear about what the book does not cover. It does not provide a comprehensive review of *all* reforms in the electricity sector over the last quarter century, nor does it attempt to provide a blueprint for the future of the sector.

Having started its work in the early 1990s, the journey of Prayas (Energy Group) runs more or less parallel to India’s electricity sector reforms. Over this period, we have keenly followed and participated in the reforms process as a proactive, independent organisation offering constructive critique and suggestions to further public interest. We have criticised the lapses of the Independent Power Producers era with episodes such as Enron, provided inputs to shape the era of Electricity Regulatory Commissions and the Electricity Act of 2003, participated in various

policy and regulatory committees, and intervened before regulatory commissions on public interest and consumer related issues. Our work has focused not only on the substantive aspects of the sector, but also on matters related to institutions and processes. These activities have helped to sharpen our understanding of the sector and informed our on-going engagement with it. This unique understanding and engagement with the sector has led to this book.

The book would be relevant to civil society, policy makers, regulators, investors and researchers who wish to understand the twists and turns of the Indian electricity sector over the last twenty-five years. We have tried to present it as an informative resource for any person interested in understanding and engaging with the electricity sector. It is our hope that the book will engage your attention and that you enjoy reading it.

Prayas (Energy Group)

January, 2017

## Acknowledgements

Over the years, the work of Prayas (Energy Group) has been informed and enriched by interactions with the research community, the government, civil society organizations, consumer groups, trade unions, industry and regulatory institutions. This has helped to hone our understanding of the reforms in the sector, and thus also in producing this book. We are grateful to all of them for this productive engagement.

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Needless to say, we are solely responsible for the final content of the book.

The electricity sector and allied fuel sectors in India have been subject to various waves of reforms from the early 1990s. This book critically examines many of these reforms and the impacts they have had, to understand if they achieved their expected objectives and if they helped in achieving the desirable socio-environmental outcomes. The in-depth analysis covers thermal, hydropower and renewable generation, electricity distribution, and associated fuel sectors of coal and natural gas.

The book concludes that while the sector has made some significant strides, the reforms have generally disappointed. The stated objectives of reforms have not been fully met and India is far from meeting its socio-environmental objectives in electricity. The sector is also plagued by insufficient competition, weak institutions, and poor design and implementation of policies and laws. The book argues that the usual polarised debate of 'for and against privatisation' is misleading. It proposes that discussions should instead be centred on how to have robust governance and institutions – within and outside government – that can achieve desirable socio-environmental goals in a transparent and accountable manner. This is essential if future reforms are to deliver better results.

