

# 4

## INDIA

### ELECTRICITY REFORM UNDER POLITICAL CONSTRAINTS<sup>1</sup>

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#### INTRODUCTION

For much of the history of post-independence India, the electricity sector has been an entrenched symbol of the nation's state-led economic development approach. Publicly owned, and operated and managed by state employees, the sector was conceived of and run as an instrument of development policy. Beginning in 1991, however, these basic assumptions began to be challenged. Sector reform efforts have been as much about contesting this mindset as about undertaking changes in ownership, investment, and management practices. For a profile of the electricity sector in India see Box 4.1.

Electricity sector reform in India has become polarized. Efforts to shrink the role of the state and replace it with greater private sector participation allowed little or no place for state stewardship of a public benefits agenda. On the other hand, efforts to continue operating the sector as an instrument of development policy failed to recognize the dire state of the sector. This study of the political economy of decisionmaking seeks to go beyond this dichotomy to understand how public benefits can be promoted in a post-reform sector. A central theme of the chapter is the need for more democratic decisionmaking in the sector.

There have been four overlapping but distinct periods of electricity sector policy approaches: (1) pre-1991; (2) the 1991 independent power producer (IPP) policy and its aftermath; (3) the World Bank-led

#### BOX 4.1 | PROFILE OF THE ELECTRICITY SECTOR IN INDIA

Population (2001)<sup>1</sup>: 1.0 billion.

Population with access to electricity (2000)<sup>2</sup>:  
Total: 46%      Rural: 33%      Urban: 82%

Installed electricity generation capacity (1999)<sup>3</sup>  
Total: 103 gigawatts (3.2% of total world capacity)  
Thermal: 76%  
Hydro: 21%  
Nuclear: 2%  
Geothermal and Other: 1%

CO<sub>2</sub> emissions from electricity and heat as a share of national emissions (1999)<sup>4</sup>: 53%

#### Notes:

1. World Resources Institute. 2000. *People and Ecosystems: The Fraying Web of Life*. Washington, D.C.: World Resources Institute.
2. International Energy Agency. 2002. *Electricity in India: Providing Power for the Millions*. Paris.
3. [www.eia.doe.gov/pub/international/ieapdf/to6\\_04.pdf](http://www.eia.doe.gov/pub/international/ieapdf/to6_04.pdf) (February 6, 2002).
4. Computed by WRI using International Energy Agency (IEA) data. IEA, 2001. *CO<sub>2</sub> Emissions from Fossil Fuel Combustion*. Paris: OECD.

restructuring policy, which began to be implemented around 1993 in Orissa; and (4) the period shortly after 1998, when the restructuring model was scaled

up through national legislation and state-level reforms. In this report, these periods are described thematically rather than sequentially. Nonetheless, distinguishing between them is useful in order to recognize how and when different types of institutional arrangements were “locked in” with considerable impact on the electricity sector.

## BACKGROUND: A LEGACY OF STATE CONTROL

During the 1990s, electricity sector reforms were part of a seismic shift in India from a closed toward a more open economy. From Indian independence in 1947 until the mid-1980s, the state played a strong role in planning and implementing strategies for economic development. Internal and external pressures to rethink this approach emerged in the 1980s, as the country went through a moderate recession. These views were endorsed primarily by strong statements from development agencies that their borrowers would henceforward have to increasingly look to international capital markets for their financing needs.<sup>2</sup>

The immediate impetus for action was a serious balance of payments crisis in 1991. The response was to liberalize investment in key sectors of the economy, including electricity, to reduce licensing restrictions on industry, lift government controls on the financial sector, and partially free currency transactions. Both the intent, and the actual policies, marked a significant departure from the previous 40 years of government policy.

### The Electricity Sector Before 1991

Operating under the Electricity Act of 1910, private companies or local authorities supplied more than 80 percent of the total generation capacity in the country prior to independence in 1947 (World Bank, 1993b). In 1948, the Electricity Supply Act brought all new generation, transmission, and distribution facilities within the state’s purview. Each state subsequently established its own vertically integrated

state electricity board (SEB).<sup>3</sup> Significantly, SEBs were financed through state government loans and were run as extensions to state energy ministries.<sup>4</sup> As a result, SEBs were “indebted in perpetuity,” and were forced to continue in a relationship of financial dependence and administrative thrall to energy ministries.<sup>5</sup> Nonetheless, SEBs were the backbone of the electricity infrastructure, and by 1991 controlled 70 percent of electricity generation and almost all distribution (World Bank, 1991).

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*Electricity sector reforms were part of a shift from a closed toward a more open economy.*

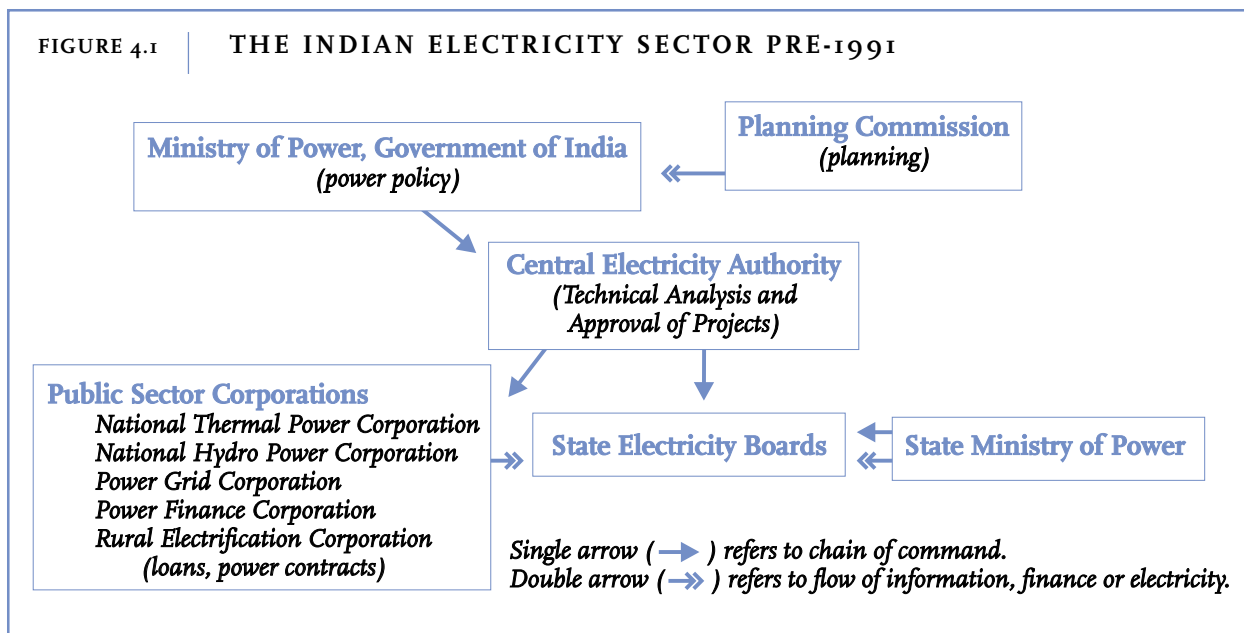
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Under the Indian constitution, the electricity sector is a “concurrent” subject, allowing both the central and state governments some authority in the sector. SEBs are under the control of state governments, which also controlled the critical tariff-setting function. The central government was responsible for electricity policy, long-term planning, technical analysis, and project approvals through the Power Ministry, Planning Commission, and Central Electricity Authority. (See Figure 4.1.)

In addition, in response to declining SEB performance and to establish a “model of modern operational practices that the SEBs could emulate,” the central government established two central power generation corporations—the National Thermal Power Corporation (NTPC) and the National Hydroelectric Power Corporation (NHPC) (World Bank, 1999a).<sup>6</sup> NTPC, now the world’s sixth largest thermal power company, is widely considered an efficient and well-respected public corporation.<sup>7</sup>

By 1991, the first four decades of public-sector-led electricity development had chalked up some notable accomplishments. Between 1948 and 1991, generation capacity increased by a factor of 50 with an annual growth rate of 9.2 percent—considerably greater than the economic growth rate (World Bank, 1991). Moreover, official reports claimed that electrification rates were 80 percent.<sup>8</sup>

FIGURE 4.1 | THE INDIAN ELECTRICITY SECTOR PRE-1991



## The Seeds of Crisis

Despite these accomplishments, there were reasons for concern about the future of the sector. Well before 1991, the sector had been locked into arrangements with electricity users, and into management practices with negative long-term implications. These arrangements constrained future reform efforts.

Perhaps the most damaging practice was the political decision in many states to provide highly subsidized or free electricity to farmers. Provision of electricity to run irrigation pumps was an important ingredient in the Green Revolution technology package aimed at increasing the productivity of Indian agriculture. However, from 1977 onward, electricity increasingly became an instrument of populist politics. By offering electricity at flat rates—based on pump capacity rather than metered consumption—or even completely free, several state governments cultivated farmers as a vote bloc.<sup>9</sup> Subsidized electricity imposed high costs and compounded the technological, institutional, and political problems in the sector.

These practices had several negative effects. First, by the mid-1990s, the World Bank estimated that

SEBs paid an annual subsidy of about \$4.6 billion (1.5 percent of GDP) to agricultural and residential users (World Bank, 1999a). Second, since flat rate or free electricity rendered the meter redundant, existing meters were no longer monitored and were often broken or removed. This “de-metering” has increased the financial and organizational challenge to the re-introduction of a consumption-based tariff. Third, agricultural tariff policy has had negative spillover effects on overall management practices of the SEBs. Since electricity load for agriculture is not well measured, technical losses as well as theft throughout the sector are conveniently allocated to agricultural consumption (Reddy and Sumithra, 1997). Finally, although agricultural electricity subsidies have been introduced in the name of social benefits, poor farmers typically do not benefit from this subsidy, and indeed may be hurt by it.<sup>10</sup> However, wealthier farmers have successfully organized themselves to lobby for continuation of this policy.

Other negative effects followed. Although many states had a declared social policy to provide agricultural subsidies, they did not always pay the SEBs directly to compensate for the loss of revenue. Indeed, agricultural de-metering meant that the

actual level of compensation required was often a mystery. Instead, SEBs developed an elaborate and self-defeating system of cross-subsidies from industrial consumers to make up for the growing revenue losses from agriculture and theft. Over time, industrial consumers found it more cost-effective to set up their own captive power plants to supplement, or replace, SEB electricity. In 1960, industrial consumption accounted for 67 percent of SEB sales; by 1991, its share had dwindled to 40 percent. Over the same period, agriculture consumption leaped from 10 to 25 percent (Tata Energy Research Institute, 1993). Losses from theft also seemed to be a serious problem. SEBs seemed reluctant to acknowledge the extent of such losses, perhaps because it was so difficult to distinguish theft from technical losses and unmetered consumption. Recent evidence suggests that while the focus has been on agricultural losses, industries using high-tension lines may be responsible for much of the theft and loss (Purkayastha, 2001; Mahalingam, 2002).

Hence, the SEBs found themselves in the unenviable position of facing growing loss-making segments of their business, and a shrinking profit-making segment. Considerable staff development and morale problems followed, with wages stagnant and sales per employee among the lowest in the world (Gutiérrez, 1993). The quality of the electricity provided inevitably suffered, with low frequency, brownouts and blackouts, and billing problems increasingly common. Poor service quality hastened the exit of industrial users from the grid, and diminished the willingness of consumers to accept higher tariffs, both of which accelerated the spiral of deterioration.

### **Attempted Reform of the SEBs**

Through the 1980s and early 1990s, various efforts at SEB reform led by the central government, the World Bank, and independent researchers all suffered from either insufficient or weak implementation.<sup>11</sup> In 1991, the central government attempted to solve the problem of electricity supply to farmers. A committee recommended the establishment of a

common minimum agricultural tariff, and a subsequent Chief Ministers' conference proposed that agricultural tariffs meet the modest target of 50 percent of the average cost of supply.<sup>12</sup> However, in the face of mobilized farmer vote banks, state governments took little action.

The World Bank provided loans to SEBs for financial restructuring, tariff adjustment, improved metering and collection, and other measures to increase distribution efficiency and revenue flow (World Bank, 1999a). In addition, World Bank support for NTPC was intended, at least in part, to promote good management practices within SEBs. By 1993, however, the World Bank had decided that SEBs had sunk into both a political and institutional quagmire and that institutional reform under the current ownership structure was a lost cause.

In 1991, an independent team of scholars published the DEFENDUS (DEvelopment-Focused, END-Use oriented, Service-directed) model, a unique Integrated Resource Planning approach that emphasized access, equity, and efficiency improvements.<sup>13</sup> Using this model, an analysis for the state of Karnataka showed that the requirements of electricity and installed capacity would only be about 40 percent of what would be required in 2000, according to a conventional projection commissioned for the state. But administrators only seemed to have a perfunctory, academic interest in this approach, and in Integrated Resource Planning in general.<sup>14</sup> It was never seriously examined, despite several appeals to develop long-term electricity policy for the country.

By the beginning of the 1990s, there was broad consensus that the electricity sector was in dire straits and that the status quo was unsustainable, particularly in financial terms. If there was a moment to seriously consider re-regulation of the sector to reassert the independence of SEBs from their political masters, devise mechanisms of accountability, and cut through the Gordian knot of politically influential consumers pampered by subsidies, this was it. But the moment passed without any considered reflection about policy reform. With the growing consensus favoring a shift in macroeconomic policy,

spurred by the balance of payments crisis, India was set to press the accelerator and motor into the next century. The electricity sector was at the forefront of the new liberalizing India.

## A MANY-LAYERED REFORM PROCESS

The reforms themselves unfolded in four stages. In 1991, the central government invited private investment in generation. When this approach failed to address the root problems in the sector, a World Bank-supported reform effort in the state of Orissa, organized around unbundling and privatization in the sector, heralded a new stage in the reform process. This model was then followed by several other states. Finally, the central government reentered the debate by proposing a sweeping legislative reform package. (*See Box 4.2.*)

## Attracting Private Investment: The IPP Debacle

In late 1991, the Ministry of Power swept away four decades of public monopoly in an act of great political significance. The new Independent Power Producer (IPP) policy was greeted with enthusiasm. However, little actual investment materialized, and a decade later, the IPP policy is broadly viewed as a flawed and halfhearted approach to reforms.

The Electricity Laws (Amendment) Act of 1991 allowed private entities to establish, operate, and maintain electricity generation plants as Independent Power Producers (IPPs) and to enter into long-term power purchase agreements with SEBs. Industry groups and urban middle class consumer groups welcomed the diminution of a public sector role and the entry of the private sector (Desai, 1999).

BOX 4.2

### CHRONOLOGY OF ELECTRICITY SECTOR REFORM IN INDIA

- 1991 Electricity Laws (Amendment) Act allows private sector participation in generation, with foreign investors allowed 100 percent ownership.
- 1992-97 Eight projects given “fast-track” approval status and sovereign guarantees by the central government.
- 1995 Orissa Electricity Reform Act established the Orissa Electricity Regulatory Commission and provided for unbundling of Orissa State Electricity Board.
- 1996 World Bank support for Orissa Power Sector Restructuring Project approved.
- 1996 Chief Ministers’ Conference formulated a common minimum action plan for electricity.
- 1997 World Bank Haryana Power Sector Restructuring Project approved, and Haryana state government passes the Haryana Electricity Reform Act.
- 1998 Electricity Regulatory Commissions Ordinance Notification provides for establishment of a Central Electricity Regulatory Commission and state-level electricity regulatory commissions.
- 1999-2001 Andhra Pradesh, Karnataka, and Uttar Pradesh proceed with preparation of Electricity Reform Acts. The World Bank prepares and approves projects supporting reform in each of these states.
- 2001 Energy Conservation Bill passed by Parliament.
- 2000-2002 Draft central government Electricity Bill prepared and introduced in Parliament.

Believing that private investors would be reluctant to come to India without generous incentives, the government acted with extravagance. IPPs were offered a guaranteed 16- percent return on equity, with bonuses for improved capacity utilization, a five-year tax holiday, and low equity requirements equivalent to 20 percent of project costs (Ahluwalia and Bhatiani, 2000). To further hasten implementation, the central government subsequently declared eight of the most promising projects “fast track” projects with expedited clearance procedures, and provided government counter-guarantees and escrow accounts against nonpayment of dues by SEBs. These incentives had the desired effect. By mid-1995, project developers and financiers had put forward 189 project offers totaling over U.S. \$100 billion, which would have increased capacity by 75 gigawatts.

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Despite the initial “euphoric” reaction, as one senior bureaucrat put it, there were also early grumbles of discontent from various quarters, which steadily grew louder as the IPP policy failed to deliver (Pillai and Krishnamurthy, 1997). While supporting the policy, IPPs grew increasingly critical of bureaucratic delays and hurdles in implementation, and ever more concerned about recovery of dues from SEBs. In reaction, an Independent Power Producers Association of India (IPPAI) was established in 1995 to serve as a “neutral proactive forum.”<sup>15</sup> IPPAI did create an important space for articulation of concerns about the reform process, although there was also a prevailing “negative opinion” within government ranks of IPPAI’s perceived emphasis on winning special favors for IPPs.<sup>16</sup>

The central government was by no means unified on the IPP policy. The Ministry of Power was perceived as the primary promoter of the policy, with support from the Ministry of Finance. One widely held view was that although the IPP policy was

“flawed,” it had “been the most promising option at that time.”<sup>17</sup> However, within each ministry there were stronger dissenting voices, with some at the Ministry of Finance who argued that concessions to IPPs might lead to net foreign exchange outflows rather than inflows. Moreover, the Ministry of Power’s suspension of technical and environmental clearance for smaller projects aroused the ire of agencies responsible for those clearances.

Multilateral donors played a curious dual role in the IPP policy. While welcoming private electricity initiatives in principle (World Bank, 1991), the World Bank delivered a strong critique of the highest profile IPP, the Enron project, in a confidential memo to the Government of India. (See Box 4.3.) The memo stated that the project was “not economically viable, and thus could not be financed by the Bank,” but urged the government to “explore ways to sustain the interest of the project sponsors” (Vergin, 1993). That the World Bank expressed its concerns about the project is laudable; that it did so only in a muted fashion is problematic. The IPP policy itself was widely viewed as faulty, since it threatened to further weaken the fiscal situation of states. Since the World Bank was actively supporting SEB reform at this time, it could well have been more public with its views. While there is no direct evidence on this point, Bank staff may have faced pressures to reconcile an IPP policy they viewed as flawed with the Bank’s enthusiastic support for India’s liberalization efforts. As a result, an important moment for critical reflection on the IPP policy was lost.<sup>18</sup>

The long-term impacts of the IPP policy were several and diverse, and are well illustrated by the high-profile case of the Enron project. First, key institutions responsible for long-term planning, and technical and economic clearance were weakened. Officials at well-functioning public agencies such as NTPC felt that the IPP policy created an uneven playing field in favor of foreign investors. Second, the reckless focus on capacity expansion excluded consideration of a more rational least-cost planning approach to electricity development. Finally, in its conception and implementation, the IPP policy offered opportunities for graft and malfeasance.

Projects were not typically selected through competitive bids, and power purchase agreements were kept secret even though they contained “take-or-pay” contracts involving public financial obligations for decades to come.<sup>19</sup> While no accusations have been conclusively proved, some high-profile projects have been caught in a swirl of accusations concerning human rights abuses, flawed environmental clearances, and corruption.<sup>20</sup>

Moreover, the IPP policy had a polarizing effect at multiple levels. Early support by urban middle class consumer groups and industry associations, who saw in the policy the promise of efficient power delivery, translated into anger toward public interest advocates who were seen as unnecessarily obstructionist (Desai, 1999). Within government ranks, those who saw the policy as the best option at the time were pitted against those who viewed the policy as flawed from the start. Thus, technically, economically, and politically, the policy created a hangover effect for future attempts at reform.

### **An Experiment with SEB Reform: The World Bank-Led Orissa Model**

On a parallel track to the IPP process, the World Bank played a major role in arguing for fundamental reforms of SEBs, and in persuading a few states—led by Orissa—to initiate reforms. Having unsuccessfully tried in the 1980s to reform SEBs within the existing structure, World Bank efforts in the 1990s were directed at unbundling and privatizing SEBs. Hence, these reforms were considerably more far-reaching than the IPP policy.

Within India, there was broad agreement that the root causes of the problem were the technical, financial, and management problems of SEBs, but there was no agreement on the solution and on how to address the political thicket that SEB reform entailed. The World Bank stepped into this morass, armed with its new 1993 policy for lending to the electricity sector (World Bank, 1993a). At a workshop for Indian policymakers, the Bank highlighted the experience of ongoing reform experiments in the

United States, United Kingdom, Argentina, and Chile. It offered to provide lending to support “...the boldest...most deserving state-level power sector reforms,” but it would not finance or provide guarantees for electricity projects in states that did not undertake restructuring (World Bank, 1993b).

Of the few states that expressed interest in the World Bank’s offer, the state of Orissa in eastern India was the first to proceed with a reform program. By the early 1990s, Orissa’s electricity sector was in shambles. Transmission and distribution losses were estimated at 43 percent, only 17 percent of bills were collected, and the ratio of customers to staff was an astonishingly low 29:1 (Thillai Rajan, 2000, p. 660). However, the Bank selected Orissa mainly for political reasons. The Chief Minister of the state demonstrated strong political support for carrying through reforms.<sup>21</sup> Orissa also had a small electricity load in the agriculture sector and a weak farmer lobby (Thillai Rajan, 2000).<sup>22</sup> With low levels of political mobilization and a minor national profile, Orissa was “an experimental rat” for reforms.<sup>23</sup>

While local political support was undoubtedly necessary, the World Bank was the driving force for reform and the most consistent motivator of change.<sup>24</sup> For example, the Bank urged increases in tariffs to lay the groundwork for reforms.<sup>25</sup> World Bank staff candidly described their role as overcoming “natural resistance to change” within the state.<sup>26</sup> Reform consultants, NGOs, government officials, and the media eventually referred to electricity sector reforms in Orissa as the “World Bank model.” These opinions were often not cast in a negative light, but as an appreciation of the Bank’s proactive role in building momentum for change, and of the effort and commitment of particular staff members.<sup>27</sup>

The World Bank’s “Orissa Power Sector Restructuring Project” required \$997.2 million, and was partially funded by the then-Overseas Development Agency of the United Kingdom. Almost three fourths (74 percent) of the financing went to rehabilitation of distribution and transmission. A second component (23 percent) was allocated to demand side manage-

**BOX 4.3****THE ENRON AFFAIR**

In October 1992, the Congress-led government of Maharashtra announced to the world that it had signed a memorandum of understanding with Dabhol Power Company (DPC), the Indian subsidiary of the U.S. based Enron Corporation, for a liquefied natural gas plant of 2,000 to 2,400 megawatt capacity, and to purchase electricity for 20 years. In what would later become a source of controversy, the deal was completed with alacrity and secrecy, despite the considerable size and financial obligations of the project, amounting to an expenditure of roughly \$1.3 billion per year.

Despite strong reservations expressed by some state and central government bureaucrats, and by the World Bank, the project was cleared. Just as lending arrangements were being concluded, the newly elected state government, whose election platform in 1995 had stressed national self-reliance, canceled the contract and proposed to invite competitive bids. The international response was primarily negative, with concerns expressed about the viability of India's reform program and India's commitment to contractual obligations.

Yet, there were good grounds for concern about the project. Journalists and analysts found indications of

complicity among officials to bend laws to accommodate Enron's demands and obtain the necessary clearances. Others predicted that the financial terms of the deal were highly unfavorable to the Maharashtra state electricity board, and that public funds were being jeopardized through the use of counter-guarantees. In addition, following charges of violence against opponents of the project, a Human Rights Watch investigation found that the state government had engaged in systematic suppression of freedom of expression and assembly, and that the Dabhol Power Company and Enron Corporation were complicit in these violations.

Despite this growing rumble of protest, within 2 months of the project being canceled, a new Power Purchase Agreement (PPA) was signed on the recommendation of a government committee with few changes to the original project. All clearances were subsequently awarded and counter-guarantees approved. Despite a pending public interest lawsuit challenging the final clearances that were given to the project and alleging fraud, the first phase of the project has been commissioned.

By 2001, the project had started to generate severe financial problems for Maharashtra. The SEB,

ment, with the remainder going to support the reform process (World Bank, 1996).

International consultants brought in by the World Bank and other donors played a considerable role in shaping reforms.<sup>28</sup> While consultants were hired for their technical knowledge, they frequently also had to assess the sociopolitical and institutional context for reforms. For example, consultants decided on a single-buyer system for Orissa, based on an assessment that the underlying technical, institutional, and commercial capabilities in the state were insufficient to support wholesale competition. In considering approaches to unbundling public utilities, they had to

consider the need to minimize layoffs to avoid union opposition. Some national actors questioned the appropriateness and ability of international consultants playing these roles. One domestic public official said that consultants "sought to fit Orissa into their patterns," while another argued that their approach was like "applying principles of aviation to a jeep."<sup>29</sup> Some national consultants with considerable experience in the sector resented being placed in junior positions, although they were well-placed to educate international consultants on local conditions.<sup>30</sup> Since national and international consultants compete for contracts, these comments should not be uncritically accepted at face value. However, international

which had been profitable in 1998-1999, plunged into losses exceeding \$300 million (excluding subsidies received from the state government) in 1999-2000. In order to honor its contract, the state had to buy power from the Dabhol plant at a cost twice that of the average production cost of electricity in the state.

Following a series of defaults on payment by the SEB, Dabhol invoked its financial guarantee from the state. When the Maharashtra government expressed its unwillingness to pay, the state's credit rating was downgraded. DPC subsequently invoked the counter-guarantee, by which time the SEB and the state government cleared their dues. Indeed, Enron officials mobilized senior U.S. government officials to raise the subject with the Indian government. DPC has since initiated arbitration proceedings in London, but the SEB has countered that the proper forum for settling all disputes with the company is the state regulatory agency, a dispute that has since moved to the Supreme Court. Most recently, with Enron Corporation itself in deep financial trouble, the troubled plant is up for sale to competing bidders.

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consultants' own views suggest that there are downsides to reliance on expatriates. As one consultant put it, "subtleties...got past us."<sup>31</sup>

National actors—whether official or unofficial—did not substantially modify the consultants' proposals. The reform process was managed by a set of working committees, guided by a steering committee that reported to the Orissa Secretary of Power. The intent was to bring together government officials, SEB officials, and donor agencies. However, the reform committees, with limited experience with private ownership and competitive electricity markets, made few modifications to the consultants' proposals.

Consultations and a media campaign were intended to reach out to the broader public.<sup>32</sup> Critics of the consultation process charge that the goal was to "achieve consensus on a model rather than to evolve a model through a consensual process."<sup>33</sup> Interviews support this view. Participants saw the role of consultations as explaining changes and "reducing tension."<sup>34</sup> NGOs reported that their concerns—including the impact on access for electricity to the poor—did not result in any changes to the approach.<sup>35</sup> Indeed, the process appeared designed to usher reforms through rapidly, based on a political judgment that a long process would allow vested interests time to mobilize opposition to reforms.

## The Content of Reforms

Reforms in Orissa, following the Bank's approach being implemented in much of the world, consisted of:

- unbundling generation, transmission, and distribution;
- allowing for private participation in generation and transmission utilities;
- privatizing existing thermal generation and distribution utilities;
- establishing an autonomous regulatory agency; and
- reforming tariffs at the bulk electricity, transmission, and retail levels.<sup>36</sup>

The lynchpin of the reform process was the passing of the Orissa Electricity Reform Act in 1995, which provided for the establishment of an independent regulatory commission and the divestment of equity in generation and distribution to the private sector.

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Public officials and Indian consultants suggest that the reforms were single-mindedly focused on financial issues and on privatizing the sector. According to one official, international donors were obsessed with removing subsidies and increasing tariffs.<sup>37</sup> Another characterized the donor approach as “privatization must be done; let’s do it somehow.”<sup>38</sup> A representative of a donor agency confirmed this perspective when he described the Orissa reforms as “basically a bankruptcy workout.”<sup>39</sup> International consultants emphasized that they received instructions to promote rapid privatization, and to “create a process that was irreversible.”<sup>40,41</sup> Donor agencies saw financial issues at the heart of the restructuring and enhanced private participation in the sector as the best solution. It was anticipated

that private finance would develop new generation capacity and enhance availability of existing capacity. Private participation in distribution was expected to improve service quality and increase financial performance. Donor agencies were not alone in this view. Some senior national and state officials held the same position. Others reluctantly agreed, only because they felt that all other options, notably continued public ownership, had been exhausted.<sup>42</sup>

Yet, attracting investors for privatization in Orissa proved to be a difficult task. To make the distribution sector more attractive, 75 percent of the shared financial liabilities were transferred to the publicly held transmission sector.<sup>43</sup> To make generation more attractive, generation companies were allowed to increase the price they charged to the public transmission company, but the transmission company was not allowed to pass on higher prices to distribution companies. As a result, the only public component, the transmission company, built up enormous liabilities that undermined its long-term viability. Ultimately, privatization was carried out, but there was limited interest and few bids.<sup>44</sup>

The results have not been positive. Since privatization, the new owners have brought neither new funds nor discernible management skills to the newly established companies.<sup>45</sup> Revenues from privatization were not plowed back into the sector, but absorbed into the government budget for other purposes.<sup>46</sup> The public has faced substantial tariff increases but seen few benefits in service, which has led to growing political discontent with the reform process and a call to bring back the publicly owned system. The private operator of one distribution zone, which also operates one generation unit, believes that the government has neither ceded management control nor paid its own bills.<sup>47</sup> As a result, this company has taken steps to withdraw from the sector in Orissa. Consequently, the Government of Orissa established a high-level committee to reconsider the reforms. The committee found that the new distribution companies had failed to bring in significant additional financing and that reductions in transmission and distribution losses had been minimal.<sup>48</sup> Despite these problems, the fact that

Orissa had embarked on and been through several stages of a reform process, including privatization, provided a powerful demonstration effect within India. Other states soon lined up to follow Orissa's lead.

## Scaling up the Model

By 1998, Orissa had managed to demonstrate that it could privatize its distribution business, and the more problematic aspects of the Orissa experiment had not yet materialized. Growing disenchantment with the IPP policy left states with few alternatives other than reform of SEBs to address an electricity sector crisis that showed no signs of abating. Moreover, as economic liberalization grew more palatable, opposition to privatization faded. Even states with avowedly communist governments competed to invite private investors (Echeverri-Gent, 2000). Finally, the World Bank continued to stand ready to support states that wished to embark on a reform program. As a result, since 1995, several large and politically significant states have concluded (or are in an advanced stage of negotiating) loan agreements with the World Bank to reform their electric power sectors.

These states have followed the basic parameters of the Orissa model, in many cases guided by the same consultants, but there have also been some significant differences. First, in subsequent efforts, electricity reforms have been part of the broader framework—articulated in the World Bank's Country Assistance Strategy for India—of state-level financial restructuring. This approach is relatively new for the World Bank, since it involves providing a broad macroeconomic restructuring loan at the state level rather than to a national government. Second, most of the new World Bank loans are structured as "Adaptable Program Loans" (APLs) that release small amounts of funds over many years, with each tranche dependent on the fulfillment of conditions. Compared to a single large loan, this approach enables the World Bank to provide a down payment on future support, to signal seriousness of intent to investors, and to provide the World Bank flexibility in adapting to future conditions (World Bank, 1997b).<sup>49</sup>

Finally, in response to difficulties faced by private distributors in Orissa, subsequent efforts have sought to mitigate risks that tariffs will not be raised, payments will not be collected, or thefts will not be reduced.<sup>50</sup>

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*Attracting investors for privatization in Orissa proved to be a difficult task.*

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The World Bank has not been the only donor agency active in the sector in India. The U.K.'s Department for International Development (DFID), Canadian International Development Agency (CIDA), U.S. Agency for International Development (USAID), and Japanese aid agencies have also provided funding for elements of the reform. Of these, DFID has provided considerable funds for technical assistance with the reform program (World Bank, 1999b). Much of DFID's contribution has been in the form of a grant rather than a loan. According to one World Bank observer, DFID's grant support for basic technical work was critical to implementation of reforms.<sup>51</sup>

It is important to note that not all states have decided to follow Orissa. A few states, including Gujarat, Madhya Pradesh, and Tamil Nadu, have decided to focus on commercialization of their SEBs rather than going down the road toward privatization. In some cases, they are receiving support from the Asian Development Bank. While it is too early to compare experiences across states, in the future these varied approaches will provide valuable material for a comparative assessment.

## The Central Government Follows the Lead of the States

With many states following the Orissa approach, the central government took steps to provide a legislative framework for state-level reforms. In 1998, the Ministry of Power championed an Electricity Regulatory Commission Act, creating a central regulatory

agency and providing an umbrella framework for each state to establish its own agency.<sup>52</sup> This act marked the first formal sign of recognition by the central government of the significance of Orissa's reform efforts, and was a late effort to provide a template for state-level reforms.

In 2000, the Ministry of Power initiated the drafting of a comprehensive Electricity Bill to replace all existing legislation in the sector. This bill is the most dramatic initiative taken to date by the central government to exercise some leadership over the direction of the sector. In contrast to the state reforms, preparation of this bill has been a domestic effort, initiated and led by the Ministry of Power. The World Bank has limited itself to comments on drafts. The bill requires states to unbundle their SEBs, establish independent regulatory commissions, facilitate open access to transmission (wholesale competition), develop a spot market for electricity, and meter all electricity supply (Suri, 2000). Although the Ministry of Power now does support privatization, the bill does not explicitly require privatization, but gives the states some flexibility on how to organize ownership of an unbundled sector.

Plans to introduce the bill in Parliament, originally intended for 2000, were postponed after the sudden demise of then-Minister of Power Kumaramangalam. In the interim, the debate has been shaken by the tumultuous experience with post-reform competitive electricity markets in California and the meltdown of the Enron Corporation. In particular, ambitious market frameworks such as spot markets for electricity have now been placed on the back burner (*Economic Times*, 2001).

The central government has sought to promote fiscal responsibility. For example, a central government-convened expert group recommended in mid-2001 that SEBs take responsibility for past dues, and that incentives were needed to support this effort.<sup>53</sup> They also argued that failure to service future obligations should meet with heavy censure.

Central government direction has also led a broad trend away from acceptance of electricity provision as

a purely commercial enterprise, and more willingness to reinsert social and economic development goals within a broad framework of fiscal accountability.<sup>54</sup> For example, a ministerial committee has promoted a concerted dialogue on rural electrification in the context of the electricity bill. This committee is likely to embrace a system of decentralized licenses managed by state electricity regulatory commissions for rural electricity provision, and introduction of a system of subsidy auctions—inspired by experiences in Argentina and Chile—for those willing to undertake rural electrification.

In addition, evidence of a more proactive approach to environmental considerations as they relate to the fiscal and other goals of reform have begun to surface. For example, the Ministry of Non-Conventional Energy Sources has proposed that a preferential tariff be introduced for wind energy projects, and that the Electricity Bill mandate that a minimum of 10 percent of electricity generation be obtained from renewable sources (*Bulletin on Energy Efficiency*, 2002a). Few developing countries have pursued such an approach, although China is among this small group. (See Box 4.4.) In addition, an Energy Conservation Bill was passed by Parliament in August 2001. It calls for the establishment of institutional and legal structures to implement energy efficiency, relying on both regulatory enforcement and market inducements (*Bulletin on Energy Efficiency*, 2002b).

With regard to the broader reform agenda, the debate appears to have shifted from the far-reaching goals of instituting complex spot markets to using the Electricity Bill to meet more pressing demands. These include the long-standing objectives of metering all consumers, increasing tariffs and removing cross subsidies, and reducing transmission and distribution losses. Since implementation of this agenda will require considerable funds, the course of actual reforms will be dictated by the availability of financing. In this context, the World Bank's policy of making funding conditional on private participation in the sector takes on renewed significance. Only states that signal willingness to privatize will have access to external funds.

## CHINA'S EXPERIMENT WITH A RENEWABLE PORTFOLIO STANDARD

In mid-2000, the Chinese government announced that it was considering adopting a renewable portfolio standard (or RPS) as a part of its Tenth Five-Year Plan for National Economic and Social Development covering the years 2001-05. Under the proposed RPS system, about 5.5 percent of each province's and autonomous region's electricity would be required to come from renewable energy sources. This plan, it was hoped, would provide incentives to replace coal-fired power plants with renewable energy sources, leading to a reduction in air pollution. Because many of the sources of China's renewable energy—wind farms, small hydroelectric dams—are in the relatively impoverished west, those designing the RPS system expected that provinces in the relatively wealthy east would have to buy electricity from western producers to meet the 5.5 percent mandate, thereby realizing a politically desirable transfer of wealth from east to west.

When the official Tenth Five-Year Plan for Economic and Social Development was announced, it contained a single sentence that urged the government to “implement favorable pricing for bringing new and renewable energy sources onto the electricity grid, and to support the prompt development of the Mandated Market Share (RPS).” Although it is important not to read too much into one sentence, it is nonetheless significant that this explicit endorsement of an RPS came from the National People's Congress, the highest organ of state power in China.

There remain significant obstacles to China's implementation of an RPS in the near future. Primary among them is a need to pass a law implementing a RPS. In addition, implementation will require creating a unified national power grid (as yet unrealized); convincing provincial authorities that run the grids to honor the terms of private energy contracts; and establishing a competitive national energy market. None of these reforms will be easy. Nonetheless, observers both inside and outside China have voiced cautious optimism that the government's flirtation with an RPS may yet lead to a cleaner, greener electricity sector for China.

### Sources:

China Daily. 2001. “Premier's Report on Outline of New 5-Year Plan at the Fourth Session of the Ninth National People's Congress on March 5, 2001.” Online at: <http://www.chinadaily.com.cn/highlights/docs/2001-04-30/3550.html> (March 5, 2001).

China Internet Information Center. “Look in the Next Five Year Plan: Blueprints.” Online at: <http://www.china.org.cn/e-15/15-3-b/15-3-b-31.htm> (May 21, 2002).

Hamrin, Jan. 2002. Centre for Resource Solutions. Personal communication. (May 23).

Martinot, Eric. 2001. “Renewable Energy Market Development in China.” Presentation made at Woodrow Wilson Center, Washington, D.C., July 19.

United States Embassy in China. 2001. “Energy Goals for the 10<sup>th</sup> 5-Year Plan.” *Beijing Environment, Science and Technology Update*. September 7. Online at: <http://www.usembassy-china.org.cn/english/sandt/estnews090701.htm> (May 21, 2002).

In sum, central government efforts to steer reforms do provide an opportunity to step back from the Orissa model driven by narrow financial considerations and think through the broader objectives of reform. However, it is not clear how these efforts will mesh with World Bank-funded state reforms, which so far have been focused on financial restructuring.

## THE ROLE OF PUBLIC BENEFITS IN THE REFORM PROCESS

It is far too early to conclude whether social and environmental conditions on the ground have improved as a result of the reforms. But a close look at the process provides insights into whether and

how public benefits were factored into the decisionmaking process by the major actors involved.

## Social Issues through a Fiscal Lens

To the extent social issues have been raised in the reform context, they tend to be viewed primarily through the lens of better fiscal management. The World Bank, in particular, suggests that reforms in the electricity sector would free state funding for “higher priority use in the social sectors” (World Bank 1999b, p. 27). Thus, the framing of the electricity sector largely excludes explicit consideration of its social dimensions, a break with the previous rationale for state involvement in the sector. Where social considerations are explicitly addressed, the reform loans do not build in measures to ensure they are achieved.

For example, the World Bank emphasizes the importance of defending concessional rates for low-income groups in the face of price increases (World Bank, 1999b). Yet, it is not clear how the continuation of lifeline rates, which will continue to place burdens on the state exchequer, can be reconciled with a desire to free funds for allocation to other priority social sectors. The magnitude of the financing shortfall is well illustrated by Ahluwalia (2000), who computes that about 50 percent of all households (81 million households) are unable to afford commercial rates for electricity.<sup>55</sup> Hence, even though the current burden on the state budget comes largely from a debt service obligation, even if these were to be minimized, social spending in the sector could easily consume much of the savings. If these households are to be provided electricity at affordable rates, there should be no illusions about the continued need for public funds even in a privatized and restructured sector.

On the important question of increasing access to electricity services, World Bank loan documents note that the commercial orientation introduced by the reforms will lead to more modest targets. At the same time, they argue that the enhanced efficiency of the resultant institutions will lead to more effective

implementation on the ground, more than compensating for the lower targets (World Bank, 1996; World Bank, 1999b). Yet, since the private sector is unlikely to invest in connecting low-income, and typically loss-making customers, it is unlikely that even modest targets will be met without a financial incentive. Hence, a strong case can be made that reforms—whether the sector is under public or private ownership—should be accompanied by intentional efforts to provide incentives for increasing access. Of the various actors in the reform arena, only the central government has shown any interest in exploring the potential for such schemes. As yet, however, no concrete measures have been taken to address the problem of limited access to electricity.

Finally, there is one hopeful outcome from the privatization experience in Orissa. Privatization has allowed decentralization of distribution responsibilities with an attendant improvement in performance. For example, the local Xavier Institute of Management (in collaboration with the Bombay Suburban Electricity Company) has established village collectives to manage and organize bill collection tasks in a few pilot rural areas. The initial experience suggests that rural residents respond very positively to control over electricity management at the village level. For example, newly formed village committees achieved a 100 percent increase in bill collections over a six-month period.<sup>56</sup> Certainly, this approach needs to be subject to greater scrutiny to ensure that decentralization does not transfer power into the hands of local elites. Nonetheless, this limited experience does suggest that aside from the debated benefits of privatization, there are potential collateral benefits arising from the greater scope for decentralized forms of organization in the sector following a loosening of state control.

## A Restricted View of Environmental Costs and Benefits

The World Bank is the most explicit of the various actors on the need to address environmental concerns. However, discussion of the environmental implications of reform is driven by the World Bank’s

internal “safeguard” policies, which are designed to ensure that negative effects of investment projects are guarded against and mitigated. Within this framework, environmental impacts refer rather narrowly to the direct environmental impact of loan funds spent on physical infrastructure, such as resettlement due to power plant construction, land acquisition for transmission lines, and the like. This narrow interpretation fails to account for environmental impacts of the broader regulatory reform put in place through the reform process. Consequently, the Bank’s interpretation of its environmental guidelines hew to a rather narrow do-no-harm approach, rather than looking for environmental gains through reforms.

The World Bank did conduct a substantial study on environmental issues in the electricity sector (World Bank, 1998).<sup>57</sup> The study notes that the sector is on the verge of massive changes, but it explicitly does not address the environmental impacts of the institutional and managerial dimensions of reform—such as unbundling or tariff liberalization—or the implications of changes in ownership from public to private. Instead, the focus is on the environmental impacts of implied changes in technology and in the price of electricity. Other than encouraging attention to demand side management (*see below*), there is little evidence of the impact of the study on the design of state-level reform packages and associated World Bank loans.

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*Social issues tend to be viewed primarily through the lens of better fiscal management.*

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Sources within the World Bank place responsibility for the limited scope of the study with the Ministry of Power. When the study was in progress in the mid-1990s, the Ministry was not convinced of the value of institutional reform. With this mindset, they were concerned that such a study could lead the Bank to impose environmental conditions on reforms, and that the study would contribute to a consensus favoring one particular route forward for state-level

reforms, pre-empting a broader debate.<sup>58</sup> This limited the scope of the study. While the environmental issues study does provide useful information on the relative costs and benefits of specific technological measures, the inattention to institutional changes was an opportunity lost.<sup>59</sup>

At the state level, the only concrete attempts to implement an environmental component to the reforms involved promoting demand side management (DSM). In Orissa, the World Bank, which allotted 13 percent of the reform loan to DSM efforts, led this effort. This enthusiasm was driven in part by the demonstrably large potential for DSM in India. It was also a political reaction to fierce criticism of the Bank for its lending program in India, particularly for the controversial Narmada valley dam projects. However, there was widespread skepticism about DSM among other donor agencies, international reform consultants, and state officials, who cynically viewed DSM as a measure to satisfy internal Bank politics and procedures—“a box to be checked.”<sup>60</sup>

For two reasons, the results in Orissa were not encouraging. First, the technical scope for DSM in Orissa was limited. Orissa had surplus electricity at the time of reforms, and there was no incentive for the utility to reduce consumption by paying customers. In addition, Orissa had a small agricultural sector. In other states, the agricultural sector is a prime candidate for DSM, since it is a loss-making sector for the utility. Second, DSM staff complained that they received little political support from the World Bank, and this view of DSM as an “embellishment” percolated through to consultants and public officials. As a result, despite the allocation of substantial funds, even the opportunities that were available were not taken.<sup>61</sup>

DSM has remained on the agenda for other states, where it is a more timely idea. Moreover, support for the idea has deepened and broadened within the World Bank and within India. Implemented correctly, DSM could ameliorate supply shortfalls and build a political constituency for reforms—particularly in rural areas—by bringing demonstrable benefits early in the reform process. However, the

lesson of the Orissa experience is that realizing both technical and political benefits requires more political support and attention to DSM as an integral part of reform efforts.

Finally, as discussed earlier, the national government has attempted to promote renewable energy technologies and energy efficiencies through various legislative instruments. These efforts represent an encouraging attention to environmental concerns, but have not yet led to any concrete gains.

### **Innovations in Governance: The Emergence of an Independent Regulatory Culture?**

Since past problems in the electricity sector are directly associated with the effective capture of electricity sector institutions by vested interests, regulatory commissions are a lynchpin in a new model aimed at independent operation. The first regulatory commission set up for the electricity sector, the Orissa Electricity Regulatory Commission (OERC), has set impressive standards for transparency in India. So far, its performance with respect to access to information and consultation has been strong. Notably, the OERC has set up a comprehensive web site to disseminate information. On several issues, the Commission has held open hearings, where labor and consumer groups have spoken.<sup>62</sup>

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*The only concrete attempts to implement an environmental component to the reforms involved promoting demand side management.*

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With regard to independent operation, the central issue for state regulatory agencies has been their control over tariffs (Balakrishna, 2000; [indiapoweronline.com](http://indiapoweronline.com), 2000b). In some states, notably Orissa and Maharashtra, regulators have been reluctant to allow tariff increases without evidence of reduced losses. Regulatory decisions on tariffs have not gone unchallenged. In Orissa, the

World Bank explicitly urged the OERC to approve tariff increases to “provide comfort” to investors just before privatization, a request that they rejected.<sup>63</sup> In Madhya Pradesh, the regulatory agency refused to allow tariff hikes, a decision that was challenged by the state government. In Andhra Pradesh, in contrast, tariff increases were strongly opposed by the public and by opposition parties ([indiapoweronline.com](http://indiapoweronline.com), 2000a).

State regulatory commissions exhibit a remarkable diversity of operation, particularly in the vigor with which they have defended their independence. Some State Electricity Regulatory Commissions (SERCs) are termed “mere extensions of government,” at least in their regulatory culture, because they do not hold open hearings and tend not to pay attention to stakeholder comment or complaints.<sup>64</sup> In other cases, there is an active interest in seeking technical assistance and informal consultation from analysts and consumer groups, resulting in bold initiatives that annoy donors and state governments because they are seen as beyond the regulators’ mandate.<sup>65</sup> In one instance, a consumer advocacy group has even provided regulators with analysis of utility performance.<sup>66</sup> Curiously, most regulators have come from bureaucracies with no great tradition of independence or public participation and consultation. State regulatory commissions have included as members former civil servants, judges, and former central or state electricity agency members with technical expertise. Yet, in some cases, as with the Orissa regulator, they have enthusiastically assumed the role of principled public oversight.

At the same time, critics have pointed out that the provisions requiring transparency and public consultation that guide regulatory functioning are by no means sabotage-proof (Dixit, Sant, and Wagle, 1998). The pressures for political accommodation remain as strong as before, as both regulators and government officials unofficially acknowledge. As one official put it, “There is not only one God in the Indian pantheon. Any regulator who does not talk to the government is living in a fool’s paradise.”<sup>67</sup> In this context, principles of good governance are diluted by granting the regulators discretionary

powers, which allow them to circumvent application of these principles in a variety of ways.

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*The Orissa Electricity Regulatory Commission has set impressive standards for transparency in India.*

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Most significant is the zeal with which members of the public, including consumer advocates, environmentalists, the media, and even casual observers, have greeted the new institutions. There is keen interest among members of the public to “democratize” the commissions at an early stage. At the same time, few civil society groups are equipped to deal with the complex technical character of the sector, which can limit the degree of engagement with regulators.

While public participation is a necessary component, it cannot substitute entirely for public policy direction. Indeed, governments must give regulatory agencies appropriate guidelines on how to make the difficult political tradeoffs between economic, social, and environmental implications of their decisions. Unfortunately, state governments perceive the reform process as an opportunity to rid themselves entirely of what has become a burdensome sector, leaving an absence of responsibility for longer-term and broader issues raised by electricity sector development. Drawing from the experience of the first regulatory agency in Orissa, regulators are setting a precedent of ignoring these tradeoffs by limiting themselves to economic decisions, and in particular to a tariff-setting role, to the exclusion of the broader landscape of electricity development in the state (Sankar and Ramachandra, 2000). Part of the problem lies in the enabling legal framework, which does not empower regulators to address economic regulation and its economic and social effects in an integrated fashion. Despite this limitation, electricity regulators do occasionally embed environmental concerns in regulatory decisions.<sup>68</sup>

Moreover, the training that regulatory commissions receive on regulatory practice does not focus on the linkages between economic regulation and environmental outcomes. This training is often dispensed by international consultants with narrowly defined terms of reference, whose ranks are staffed by regulatory economists with neither the expertise nor the inclination to explore broader issues of public benefits in the sector. Since the past ills of the sector were perceived as the result of mixing social development with the business of providing electricity, the message typically delivered to the regulator is “it is not your role to solve social problems.”<sup>69</sup> Yet, at the moment, there is no other body in a position to do so. Early attention to these issues is necessary because it will be hard to graft attention to public benefits onto the mandate and expertise of regulatory commissions at a later date. The initial period not only develops skills, but also sets priorities and shapes institutional cultures. The lack of attention to a long-term vision could ultimately limit the full potential of regulatory commissions as a progressive force in the sector.

## CONCLUSION

Electricity sector policy in India has been locked into adverse arrangements at least twice in its history. The first was when agricultural consumption was demetered and extensive subsidies were offered. The second was when SEBs signed IPP contracts with major fiscal implications. A third set of circumstances, with the potential for equally powerful forms of institutional rigidities, are in the making with the reproduction of the Orissa model on a national scale. These circumstances may yield favorable institutions, like democratic and transparent regulation, but may also result in unfavorable ones, such as locking out integrated resource planning or scaling back programs to expand services to rural areas.

The World Bank has played a central role in moving the sector to the threshold of a new organizational form. The Bank forcefully argued that the sector had reached the end of its current road, and backed up this assertion by conditioning funds on bold reforms.

The Bank's success has rested only in limited part on the brute force of conditionality, and rather more on skill in building what appear to be genuine constituencies for reform among bureaucrats and politicians. Nonetheless, it is problematic that the Bank's dexterity led to the adoption, without broad public debate, of what appears to be a single dominant approach to transformation of a critical sector. That a few other states have adopted a different route based on reform, but no change in public ownership, will provide an interesting basis for comparison in a few years. By the time reform was served up to the nation in the form of the Electricity Bill, many of the key decisions had been made. A broader debate about the ultimate goals of policy change and the best means to achieve these goals could not only broaden the range of ideas, but also mobilize new actors to play a role in the regulatory process and build a constituency for reform. While the World Bank and its supporters have argued that opening a debate would condemn the sector to paralysis, the back-door approach, particularly in the early days of reform, limited participation in the debate to a few technical and financial experts. More recently, there are welcome signs that state-level reforms are subject to an open and more broad-based debate.

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*While public participation is a necessary component, it cannot substitute entirely for public policy direction.*

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This review of the reform process suggests that there was little explicit attention paid to either the social or environmental dimensions of a public benefits agenda. While social issues received lip service, few measures were put in place to ensure that these objectives would be realized. With the exception of a genuine effort at demand side management at the state level by the World Bank, discussion of innovative financing schemes for ensuring rural access by the central government, and some discussion of incentives for renewable energy, there has been little explicit attention to environmental

outcomes. While reforms may yet indirectly lead to both social and environmental gains through the construction of a better functioning sector, there has been little attempt by any of the reformers to ensure this outcome. It is by no means clear that a long-term social and environmental vision can be subsequently woven into the fabric of reforms. Nor is it fully clear that social and environmental benefits are always coterminous with the techno-managerial vision of the sector based on privatization and a measure of competition. The history of agricultural subsidies and the IPP debacle should teach us how expedient choices in the present constrain our collective future.

Looking forward, considerable hope rests on the new autonomous governance structure of the regulatory commissions. Still, even that expectation is only tenuously sustained by the experience in some states, and less so in others. With regard to actively shaping a visionary future, independent regulation so far does offer many opportunities to promote public benefits. While enabling legislation provides some room for interpretation, regulators seem inclined to define their job narrowly, an inclination that is reinforced by the international consultants who train them. A conservative and narrow regulatory culture could be a particularly significant force for institutional lock-in that will shape the future development of the sector.

It is late, but perhaps not too late to have an informed public debate about the future of the sector. Such a debate should actively consider increased access to electricity, social pricing, and the promotion of sustainable energy futures as concerns to be integrated into reforms. Such debates could favor a decision to pursue short-term financial motivations first, as those who have led reforms thus far suggest. But it is also possible that broad dialogue will both enhance scrutiny over and the effectiveness of existing reforms, and suggest ways to achieve both short-term financial health and longer-term social goals. Either way, without explicit attempts to bring diverse groups into the debate, in a democratic polity the political sustainability of policy reform will always hang in the balance.

## NOTES

1. This chapter is a substantially revised and updated version of Navroz K. Dubash and Sudhir Chella Rajan, “Power Politics: The Process of Power Sector Reform in India,” *Economic and Political Weekly*. XXXVI (35): 3367-3390.
2. There were clear warnings from the donor community that only about one fifth of required finance for developing countries’ projected electricity needs would be available from multilateral sources (Churchill and Saunders, 1989).
3. A small number of private companies continued operation, particularly in large cities, largely buying electricity from SEBs.
4. SEBs are expected to operate on a commercial basis and earn at least a 3-percent return on their net fixed assets.
5. Interview with a former member of the Planning Commission, July 18, 2000. All interviews for this chapter were conducted on a not-for-attribution basis. Consequently, interviewees are identified only by their institutional affiliation.
6. The World Bank was supportive of this move, and directed more than half of its total allocation of \$7 billion in sector funding between 1970 and 1991 to NTPC (World Bank, 1999a).
7. This record has been tarnished recently by the reports of human rights abuses at Singrauli in Madhya Pradesh (World Bank, 1997a).
8. This figure, drawn from various Central Electricity Authority surveys, must be treated with some caution. That distribution lines had reached most hamlets did not mean that all households were necessarily able to access and use electricity.
9. Interview with former Andhra Pradesh state official, July 20, 2000.
10. Sant and Dixit (1996) suggest that the benefits flow largely to landed farmers who can afford mechanized irrigation, and who use irrigation to grow high-value cash crops. Landless populations do not benefit from this policy (Verma, 1999), unless it is indirectly through greater employment opportunities. Moreover, cheap electricity encourages profligate use of groundwater, and large farmers are better able to mobilize capital to chase the water table than are small farmers (Dubash, 2002).
11. For example, see Government of India (1980) and Planning Commission of India (1994).
12. Reported in Government of India (1999).
13. Reddy et al. (1991). DEFENDUS modeled its framework on energy services by examining supply expansion as well as efficiency improvements, and allowed for environmental costs to be internalized. A committee for the Long-Range Planning of Power Projects (LRPPP) set up by the government of Karnataka projected that the state would require a six-fold increase in electricity supplies by the year 2000—from the 1986 consumption of 7.5 terawatt hours to 47.5 terawatt hours, and from the 1986 installed capacity of 2,500 megawatts to 9,400 megawatts. With end-use efficiency improvements, the DEFENDUS scenario proposed 17.9 terawatt hours of electricity and an installed capacity of 4,000 megawatts by 2000, together amounting to roughly one third of the cost of the original scenario.
14. Within the U.S. context, IRP has a rather specific meaning applicable to traditional (vertically integrated) utilities, which are required to submit plans to regulators for integrating demand side as well as generation options in their tariff submissions. We use the term here more broadly to refer to any attempt to identify, analyze, and acquire cost-effective resources, which would lower the long-term cost of energy services. In this definition, long-term resource planning (taking into account supply side and demand side efficiencies) would be conceivable even in an unbundled situation as long as a regulator could develop and implement incentives structures to promote more cost-efficient resource use.
15. See <http://ippai.org>.
16. Interview with government bureaucrat, July 20, 2000.
17. Interview with power sector official, July 13, 2000.
18. It is important to bear in mind, however, that sections of civil society were very active during this time in formulating their own responses to IPP policy. In various newspaper and magazine articles and other public forums, journalists, former bureaucrats, academics, and environmentalists criticized specific projects as well as the overall framework. One group of critics formed a “National Working Group on Power,” and organized workshops and campaigns against IPP policy. Public interest litigation was filed on behalf of citizens against the government as well as specific IPPs on grounds of corruption, environmental damage, and constitutional violation.
19. The World Bank held a workshop on competitive bidding at Hyderabad in 1994, (personal communication, World Bank staff, February 2002). Nonetheless,

- by then many of the largest power purchase agreements were negotiated in secret and without competitive bidding (Reddy and D'Sa, 1995).
20. For example, in the case of the Mangalore Power Corporation, where Cogentrix Corporation was the developer, public interest litigation was filed by a consumer activist in the Karnataka High Court alleging offshore payments by Cogentrix's partners through a subsidiary in the British Virgin Islands. The company has since withdrawn from the Karnataka project, citing delays in gaining government approvals and in resolving the litigation (Fernandes and Saldanha, 2000).
  21. The initial reason for support was the World Bank hint that funding for a favored hydroelectric project would be more forthcoming if the state undertook broad reforms. While this tactic was instrumental in initially getting the Chief Minister's attention, several interviews with senior state officials (July 20, 2000) indicate that he very quickly developed a deep personal belief in the need for fundamental reforms in the sector. Thillai Rajan (2000) confirms this account.
  22. Agriculture accounted for 6 percent of load in Orissa versus around 40 percent in many other states (Thillai Rajan, 2000).
  23. Interview with power sector official, July 14, 2000.
  24. Interview with Orissa state official, July 20, 2000, and interview with former national power sector official, July 18, 2000.
  25. Interview with former national power sector official, July 18, 2000.
  26. Interview with World Bank staff, July 13, 2000.
  27. Interview with public power sector officials, July 18, July 20, July 25, 2000.
  28. Interview with reform consultant, September 13, 2000.
  29. Interview with Orissa public sector officials, July 25, July 26, 2000.
  30. Interview with Indian consultant, July 15, 2000, and with academic, July 26, 2000.
  31. Interview with international reform consultant, September 13, 2000.
  32. World Bank (1996), and interview with Orissa public official, July 25, 2000.
  33. Interview with NGO staff, July 22, 2000.
  34. Interview with academic, July 26, 2000.
  35. Interview with academic, July 26, 2000.
  36. See World Bank (1996).
  37. Interview with consultant, July 18, 2000.
  38. Interview with Orissa power sector official, July 15, 2000.
  39. Interview with donor agency staff, December 7, 2000.
  40. Interview with international consultants, September 13, 2000.
  41. Indeed, the Bank adopted a reform mantra, "Failure is not an Option" to emphasize "the importance of relentless pursuit of reform implementation at times of difficulties." World Bank (1996, Annex 5.3 p.4).
  42. Interview with Orissa public official, July 20, 2000, and July 25, 2000, and interview with former national power sector official, July 27, 2000.
  43. For details see Mahalingam (2000).
  44. One company, Bombay Suburban Electricity Supply purchased three of the four distribution zones, and sought to purchase the fourth, but was turned down in order to introduce some competition (Mahalingam 2000, p. 96).
  45. Interview with former Orissa power sector official, July 25, 2000.
  46. According to one report, only 3 percent of the privatization revenues from the sale of the Orissa Power Generation Corporation were re-invested in the sector (Indiapoweronline.com, 2001a).
  47. Personal communication with international reform consultant to Orissa, September 18, 2001.
  48. See Pragativadi.com (2002).
  49. For example, the Andhra Pradesh Adaptable Program Loan was structured around five sets of conditions: (1) pass a reform bill and reform tariff setting; (2) notify the bill, establish a regulatory commission, and unbundle the SEB; (3) partially privatize distribution; (4) further privatize distribution and list shares of the generation company on the stock market; and (5) privatize distribution completely and list shares of the transmission company (World Bank, 1999c).
  50. For example, in the state of Karnataka, one proposed mechanism is the introduction of a "distribution margin" that guarantees income to the distribution company during a transition phase. This approach has been criticized as unduly insulating the private investor from risks that are within their ability to manage, and potentially limiting the authority of the regulator (Menon, 2002).
  51. Interview with World Bank staff, July 6, 2000.
  52. Under the Act, each state had the choice of establishing a commission on the basis of the central govern-

- ment Act or through state level legislation, as Orissa had done.
53. Specifically, the committee proposed that SEBs be allowed to issue bonds in favor of creditors, the incentive being a waiver of 50 percent of the interest on past dues of SEBs. While this broad approach has been welcomed, whether it adequately recognizes the challenge to states to meet future obligations has been questioned (Ahluwalia, 2001).
  54. Interview with power ministry official, March 8, 2000.
  55. Most of these 81 million households currently do not have access to electricity. If the considerable challenge of providing them access to electricity is met, and these households were asked to meet half the average cost of supply, the remaining subsidy burden on the treasury would be about \$1.4 billion. This is approximately the amount now spent on electricity subsidies, an amount which clearly does not reach the poorest and most needy. However, as this calculation suggests, the issue is not whether subsidies will be needed, but how they should be best targeted to reach the poorest.
  56. Interview with staff from Xavier Institute of Management, July 26, 2000.
  57. The study develops a methodology that is applied for two states, Andhra Pradesh and Bihar.
  58. Interview with World Bank staff, July 6, 2000.
  59. Indeed, sources within the government do suggest that World Bank studies—such as an early study on long-term issues in the sector, or an ongoing study on farmer uses of electricity—are influential and useful in internal debates (Interview with government official, July 14, 2000).
  60. Interview with international consultant, September 13, 2000, and interview with donor agency staff, July 17, 2000.
  61. Interview with reform consultant, September 16, 2000.
  62. Interview with representative of consumers group, July 25, 2000.
  63. Interview with public official, July 20, 2000, and with consultant, September 13, 2000.
  64. Interviews on July 27, 2000 with consumer advocate and consultant.
  65. Donor interviews, July 15-17, 2000.
  66. In interviews, Prayas, a nongovernmental organization in Pune that has focused on sustainable energy issues, was referred to by officials and regulators as a credible NGO actor in the sector. Interview with government official, July 14, 2000 and interview with regulatory official, July 20, 2000.
  67. Interview with former public official, July 20, 2000.
  68. For example, regulators provide incentives for improved efficiencies in generation, transmission, and distribution through “no regrets” policies. Personal communication, Sanjeev Ahluwalia, February 2002.
  69. Interview with international consultant, September 13, 2000.

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