



## Reforming India's Energy Sector (1978–99)

The South Asia Region initiated a new strategy for assisting India's energy sector in 1993, promoting structural reform of state electricity boards and lending only to improve efficiency in distribution systems. This approach is likely to pay substantial dividends for consumers, is relevant to India's development objectives, and is helping to rehabilitate a critically weakened sector. It has made effective use of Bank resources and mobilized resources from the private sector. Because radical institutional change is being implemented, the risks are substantial but, given country ownership of the reform, OED rates sustainability as likely.

### Expanding Productive Capacity

In the first 40 years after independence, India's policymakers generally held self-reliance and cheap energy to be the twin goals of India's energy sector, with public ownership of the means of production. Installed electric capacity increased from 1,500 MW in 1948, when the sector was nationalized, to more than 89,100 MW in 1998, making it one of the world's largest power sectors.

Until 1993, Bank energy lending largely followed the government's lead, supporting expansion of productive capacity through large-scale projects implemented by central or state monopolies. Institutional strengthening aimed to improve financial performance by raising prices and studying ways to improve technical performance. The Bank provided 13 loans and 3 credits to help the National Thermal Power Corporation (NTPC) rapidly expand

generation capacity and become the largest power generator in India. In the 1980s, in an effort to get the state electricity boards to improve the efficiency of their operations, the Bank tried supporting new power generation facilities in some states. These programs failed to meet their goals of improving the operations and financial viability of the state boards. In the coal sector, lending in the 1980s focused on increasing the proportion of coal produced through large, low-cost open-pit mines. Oil and gas projects also focused almost exclusively on the physical infrastructure needed to expand production. Sectoral policies, including those for product pricing policies and gas allocation, were not effectively addressed.

The Bank and the International Finance Corporation (IFC) have also supported development of the small but strategically important private power sector and, in

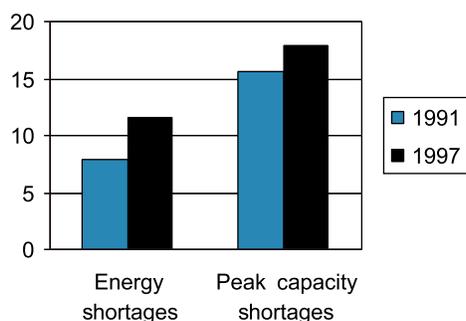


1992, the Bank financed a renewable energy project supporting private development of wind, solar, and mini-hydropower generation projects. The wind power component has been particularly successful. India is now one of the world's largest producers of wind power (900 MW).

### How Did Bank Projects Fare?

The energy projects of the 1980s were essentially “nuts and bolts” physical investments to expand productive capacity in power plants, transmission facilities, coal mines, and oil and gas production facilities. *Efficiency* was the primary concern. Early loans for expanding power generation, building transmission lines, expanding coal production, and increasing oil and gas production were all designed to produce a planned output and to be implemented in a reasonable time, at a reasonable cost. The financial viability of the implementing agency was an important issue, but little attention was paid to sector policies. With the notable exception of the loans to the state electricity boards to build power generating plants, most projects were implemented efficiently. However, several of the power plants built by NTPC had to operate at greatly reduced capacity for several years after startup because the transmission system was inadequate to evacuate the power. Bank projects played a significant role in production gains in the power, coal, and oil sectors. But even with Bank support the growth of electricity supply continued to fall short of the growth in demand. The 1990s were a period of continuous electricity rationing caused by supply shortages (figure 1).

**Figure 1: Growing Shortage of Energy**



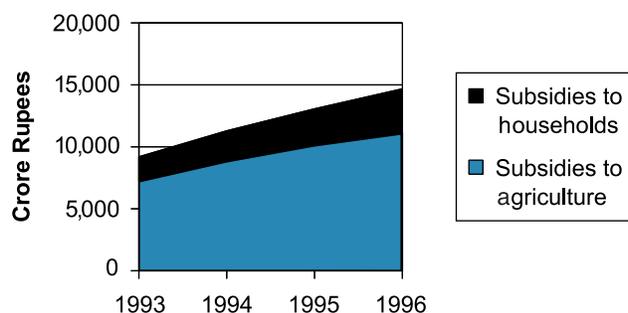
Source: Government of India, Ministry of Industry, Department of Industrial Policy & Promotion, Secretariat for Industrial Assistance, “POWER” 1998.

The Bank's lending programs were far less effective in dealing with the environmental and social impacts of projects and in improving the sector's overall operating efficiency, especially in resource mobilization and institutional financial performance. Institutional development in state electricity boards was almost uniformly unsatisfactory; and it was less than satisfactory in oil and coal projects as well. Only in the late 1980s did the lending program assign more priority to strengthening sector policies and institutions, with loans to the state electricity

boards to improve operational performance; to Coal India to institute cost-cutting efficiency improvements in activities not being financed by the Bank; and to Oil India to introduce modern business practices. None of these operations proved successful and compliance with the Bank's social and environmental safeguard policies was not always assured.

That the lending program was *irrelevant* to the Bank's broader goals of making the power sector sustainable became increasingly evident in the early 1990s. In the 1970s and 1980s, although the lending program was relevant to the Bank's policy objectives on a project level, it was becoming less relevant to the power sector's real problems. Nor were the benefits *sustainable*. Institutional performance declined throughout the 1980s and 1990s. Many states had distribution losses of 40 percent and more. And financial losses reached \$1.8 billion—or 0.5 percent of GDP—in the early 1990s, diverting government resources from other development objectives. By 1996, the subsidy to agricultural and residential consumers had climbed to 1.5 percent of GDP. Heavy subsidies for the power sector drained state resources from investment programs that could directly help the poor. It was essential to mobilize resources (figure 2).

**Figure 2: Growing Subsidies**



Source: Government of India, Ministry of Industry, Department of Industrial Policy & Promotion, Secretariat for Industrial Assistance, “POWER” 1998.

### A Change in Bank Strategy

The Bank changed its strategy in the early 1990s. With India's economic crisis of 1990/91, the Bank reevaluated its sector priorities. The state electricity boards had failed to improve their performance or meet their financial commitments, so the Region decided in 1992 to close loans to state boards that could not meet their covenanted commitments. Over the next three years the Bank cancelled over \$2 billion in nonperforming loans and shifted the focus of its lending strategy to the sector's institutional, financial, and environmental sustainability. The Bank would lend only to states that agreed to totally unbundle their electricity boards, privatize distribution, and facilitate environmental reform and the private sector's involvement in power generation. It would lend to the coal sector only when

Coal India began restructuring, by making each subsidiary managerially and financially independent (with no cross-subsidizing of subsidiaries)—and only for projects geared to improving environmental, resettlement, and rehabilitation practices. The Bank ceased lending to the gas sector because it was unable to establish an effective dialogue on pricing and other issues.

Privatization was important in the power sector because renovating and expanding power distribution systems required new investment, which the state governments could not provide, and a new culture that would make efficiency and minimizing losses a real priority. Restructuring is not an easy process. It takes time to move from the decision to change the system, and the realization that privatization is the only way to do it, to biting the political bullet and accepting that hard decisions must be made to put together a system that will work. In India, that meant, among other things, creating a strong regulatory commission, eliminating government patronage (privileges such as placing new employees, locating new distribution lines and connections, and controlling where and when to build new plants), and selecting senior management.

### A Best Practice Model

The program in the power sector, where most of the Region's effort has gone, is beginning to bear fruit. The Bank spent three years supporting reform in five states, with the help of significant funding for technical assistance from bilateral development agencies, particularly DFID (U.K.), CIDA (Canada), and USAID (U.S.). The Bank made no energy loans between 1993 and 1996. Three restructuring projects came to fruition between 1996 and 1999. Since that time, the state of Orissa has established an effective independent regulatory authority, fully privatized three of its four distribution networks, sold a hydropower generation plant, and is well on its way to contracting with an independent power producer for a new thermal power plant. The states of Haryana and Andhra Pradesh are also implementing Bank-supported restructuring programs. In all of these states, government resources that previously supported the power sector will now be available for investments that directly improve the well-being of the poor.

OED supports the strategy the South Asia Region initiated for the energy sector in 1993, promoting structural reform of state electricity boards and lending only to make distribution systems more efficient. This policy involves risks but it is likely to pay substantial dividends for consumers, is relevant to India's development objectives, has helped rehabilitate a critically weakened sector, and has efficiently used Bank resources and mobilized resources from the private sector. Moreover, because the authorities endorse radical institutional changes, the reform is likely to be sustainable.

### Lessons Learned

*Tariffs must reflect real costs.* Projects that focus on physical investments to increase energy production encourage inappropriate, unsustainable policies. Results will improve if energy projects are evaluated for how they contribute to the sector's sustainable, balanced growth. Low energy prices lead to heavy consumption and over-investment to support that consumption. Bank support greatly facilitated the growth of India's coal, gas, and electricity production, which helped state governments avoid restructuring prices and institutions. The Bank should refuse to lend to sectors in which growth is unsustainable because inadequate prices make it impossible for the sector to generate the resources to cover its costs.

*More emphasis must be put on making energy distribution systems more efficient.* High distribution losses greatly diminish the economic benefits from new generation facilities. Least-cost generating plans are insufficient to demonstrate an optimum investment program without an adequate distribution investment program.

*Government monopolies in the power sector in developing countries have, on the whole, been unable to operate efficiently.* Private ownership and competition have generally led to greatly improved efficiency. The Bank should lend only in energy sectors that are making clear progress toward creating a competitive environment.

*Reversible one-shot actions to make institutions more financially viable are seldom effective if they don't address the underlying financial causes.* In the energy sector, tariff increases are unlikely to have a long-term impact if the tariff adjustment process is still politically controlled.

*The Bank must foster government ownership of adequate environmental standards.* Because of their size, energy sector projects will always engender concerns about environmental and social safeguards. The Bank has improved its safeguard policy assessments at appraisal, but some concerns can be resolved only after a project is in operation, so rigorous Bank supervision is required. In India state governmental agencies need to maintain supervision and monitoring. The Bank should help these agencies develop monitoring and reporting capabilities and should lend for environmentally sensitive projects only when governments demonstrate ownership of adequate environmental standards.

### Next Steps

#### Power

- The Bank should not support power generation projects (including private power projects) that supply power to inefficient, loss-making distribution entities, even if the generation company itself is efficient.

- Institutional reform that eliminates direct political control over the process of adjusting tariffs should be a prerequisite for Bank support of power sector projects.

#### Coal

- The coal sector must become more competitive and market-oriented. Further Bank support for this sector should be premised on the central government implementing real, irreversible structural change—especially by encouraging new private-sector mining operations and (to sustain pressure to improve efficiency) by further unbundling Coal India subsidiaries as independent companies.
- More attention should be focused on detailed analysis of the contractual relationship between project entities, suppliers, and consumers. The structure of these contracts can be critical for an undertaking's economic and financial success.

#### Oil and Gas

- The Bank must find ways to maintain a policy dialogue on issues critical to the gas sector, because gas policies affect not only national resource mobilization but the structure of the energy sector.
- Gas can be used for environmentally sound power generation only if pricing policies are rationalized. Setting gas prices below import parity hinders both the development of new indigenous gas reserves and the viability of import schemes for liquefied natural gas. Policy discussions should emphasize moving gas prices up to parity with imported gas, to allow the market for imported liquefied natural gas to develop.

#### Environmental and Social Safeguards

- The Region should undertake to systematically develop India's capacity to implement the safeguard policy framework both centrally and within implementing agencies in the states.
- Monitoring and supervision of environmental and social compliance agreements should become a central issue in the Bank's dialogue with national and local governments. State institutions must be strengthened to meet their supervisory obligations. Until they are, independent verification agencies should be contracted to do the job.
- The Bank should continue to supervise projects until agreed-upon social safeguard policies are fully implemented. For environmentally sensitive energy projects, the Bank should continue reviewing the performance of state environmental institutions until the loan is repaid.
- To ensure that its environmental mandate is taken seriously, the Bank must hold state governments to their commitments to implement monitoring agreements.

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