Enron's eight-year power struggle in India

By Tony Allison

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1. Introduction

On January 9, the Maharashtra state government in India averted an immediate crisis by coughing up US$24 million for the Maharashtra State Electricity Board (MSEB) to pay some of the money it owed the Enron-controlled Dabhol Power Corporation (DPC) for the purchase of electricity.

The release of the money to the cash-strapped MSEB, the state's electricity utility, has temporarily defused what was threatening to blow up into a major dispute between the DPC and the state authorities. The DPC, which is majority-owned by a subsidiary of the American energy giant Enron Corp, operates a 740 megawatt (MW) combined-cycle power plant, and serves as its fuel manager. The MSEB had not paid the DPC since October 2000. It still owes $48 million in arrears for November and $34 million for December.

However, the crisis is not yet over as the state government has formed a high-powered committee to review the power purchase agreement (PPA) of Phase II of the project, which is already under construction. It is expected to reach a decision in a few weeks.

According to the state's chief minister, Vilasrao Deshmukh, the decision has been taken because the price of power supplied to the state electricity board by the DPC is too high. Power from the DPC averages more than double the price of power the MSEB buys from other suppliers in the state.

However, industry sources say the review is more the result of political pressure from within the coalition government of Deshmukh, whose Congress party heads a fragile coalition. Alliance partners, including the Janata Dal and the Peasants and Workers Party, are strongly opposed to Enron.

The Dabhol power project, located on the Maharashtra coast approximately 180 kilometers south of Mumbai, is Enron's flagship project in India. Dabhol Phase I, generating 740 MW of power, began operating in May 1999. When Phase II is completed at the end of 2001, Dabhol will generate 2,450 MW of power to become the world's largest independent natural gas-fired power plant.

Under the existing power purchase agreement of 1995, which itself is the result of a disputed renegotiated deal, the MSEB has to pay the DPC a minimum of $220 million a year for 20 years whether it needs the power produced or not. The contract, which is controversially counter-guaranteed by both the state and federal governments, threatens to bankrupt the MSEB and the state exchequer itself.

The deal is also designed to pass on the effects of rupee devaluation and rises in international petroleum prices to the MSEB. Over the past year, both of these things have happened, making DPC power increasingly more expensive.

International and Indian financial backers of Phase II, who concluded what has been described as one of the most complex power packages ever put together, met recently in New York to discuss developments as cancellation of the project could have profound repercussions. In view of the state's payment, however, they decided not to take any action. There had been speculation they would invoke a $28 million Letter of Credit guarantee given by Canara Bank as an immediate remedy to offset the MSEB's defaults. The Industrial Development Bank of India, the State Bank of India and ICICI Ltd were the key Indian lenders who attended the meeting.

Earlier in January, Enron made the headlines over its stance on a massive power blackout that threw more than 200 million people into darkness in northern India. Enron demanded three times the normal rate for supplying power from its Dabhol plant to re-start the stalled electricity stations. Electricity was finally sourced from the government's own units.

Narayan Roy, a former chairman of the central government's Central Electricity Authority (CEA), has been quoted as saying that "the 1995 renegotiation of the Enron deal was a piece of professional dishonesty on the part of MSEB engineers who may have succumbed to political pressure without realizing that their actions would lead to the bankruptcy of the board".

The DPC blames the MSEB's financial troubles on transmission losses through poor equipment and theft, and the failure to collect dues, rather than on steep tariffs.

In June 2000, the DPC reported profits of $42 million during the first year of its operations. It said it was also exploring the third-party sale of power, with possibilities in Karnataka, Andhra Pradesh, Rajasthan and Tamil Nadu.

2. Intrigue, accusations and acrimony

Controversy over Enron's Dabhol project in Maharashtra state has raged since April 1992 when Houston-based Enron was invited to bid for the project as part of India's economic liberalization drive. The issue, which pits local people against a global energy corporation, has generated endless controversy, including protest rallies, environmental concerns, charges of human rights abuses, court cases and political skullduggery.

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The struggle against Enron has become symbolic of the struggle against globalization in India, while an international human rights body has raised concern over the government's, and implicitly Enron's, treatment of opponents to the project.

In 1992, pursuing a policy of economic liberalization, the Congress (I)-led government of India, under then prime minister P V Narasimha Rao, announced it would open up the power and electricity sector to foreign investment. On a three-week trip abroad, during May and June 1992, a senior Indian government delegation met with Enron officials and announced the company was interested in building a power plant in India.

On June 10, 1992, almost immediately after the delegation's trip, the Indian government's secretary of power informed the Maharashtra State Electricity Board that a group of Enron officials was coming to survey land along the coast of Maharashtra for a proposed power project. Five days later, representatives of Enron and General Electric arrived in New Delhi and met with officials of the central government.

Memorandum of Understanding: Two days after that, the company delegation arrived in Mumbai and reviewed sites along the coast. Following their survey, they met with representatives of the government of Maharashtra, and on June 20, 1992, a Memorandum of Understanding (MoU) with the state government was signed to build the Dabhol Power project.

Although the MoU was not a legally binding document, the deal-making process was criticized for its haste, its lack of transparency and the absence of competitive bidding. The process would form the basis for a widespread belief that corruption played a role in the project's implementation.

Detailed criticism of the agreement was provided in the Maharashtra government's 1995 *Report of the Cabinet Sub-Committee to Review the Dabhol Power Project,* which stated: "Thus, in a matter of less than three days, an MoU was signed between Enron and MSEB in a matter involving a project of the value of over 10,000 crore rupees [almost $3 billion] at the time, with entirely imported fuel and largely imported equipment, in which,

admittedly, no one in the government had expertise or experience. In fact, the file [on the project] does not even show what Enron was - what its history is, business or accomplishment.

"It looked more like an ad hoc decision rather than a considered decision on a durable arrangement with a party after obtaining adequate and reliable information. Neither the balance sheet and annual accounts of Enron, nor any information about its activities, area of operation, its associates, etc, was obtained by the government then, or even later."

After the agreement was signed, the government of Maharashtra state requested that the World Bank review the project to determine what would be required by the companies and the government and to evaluate the MoU.

The World Bank team found many irregularities in the agreement and noted the government had not set up an overarching framework within which to privatize power in India. The World Bank's analysis determined that the government had not provided an "overall economic justification of this project" and, in particular, noted that the MoU required the MSEB to pay the DPC within 60 days, but the company had no limitations on actual supply of electricity, importing fuel, construction, or financing. In other words, the MSEB would have to pay the company for electricity at a prescribed rate, regardless of whether the electricity was actually available.

The World Bank thus determined that the MoU was "one-sided" in favor of Enron and encouraged the government to "verify Enron's experience" as an electricity generating company before proceeding with the project.

The World Bank's doubts were echoed by the government of India's Central Electricity Authority (CEA), whose experts conducted their own analysis of the MoU and also noted many irregularities. Among their findings, they reported that the MoU did not provide specific details about the costs of the project which were required under Indian law; that the MoU did not specify when the 20-year contract (and its associated payments) would begin, when the electricity was available, or when the contract was signed; the structure of payments was a "departure from existing norms"; the price of power was high; there was no provision to audit the project over time to ensure that the price MSEB paid to the company was commensurate to the actual cost of electricity; the MSEB had agreed to a guaranteed minimum fuel purchase, while the fuel supplier was not concurrently bound to provide a minimum quantity of fuel; and the MSEB had not verified whether the price of fuel was economical. Consequently, the CEA concluded that the "entire MoU is one sided" in favor of Enron and its partners.

On August 29, 1992, Enron submitted its detailed application to the Indian government's Foreign Investment Promotion Board for a $3.1 billion project to generate 2,550 MW of electricity fueled by liquefied natural gas (LNG). The plan envisaged that the power plant would go on-line in December 1995.

On December 12, 1992, the Foreign Investment Promotion Board notified Enron its

project would have to be scaled down to 1,920 MW and split into two phases. The price would be $2.65 billion as opposed to the original $3.1 billion. The company agreed. On February 3, 1993, the government notified Enron its project had been approved and that the government would apply for financing with the World Bank and other institutions.

The World Bank, however, turned down financing on April 30, 1993. It determined that the project was "not economically viable". It also advised the project did not satisfy the test of least cost power and it was too large for the power demands of Maharashtra.

Despite grave concerns, (see below) the Central Electricity Authority's (CEA) on November 26, 1993, gave a provisional clearance to the project which would allow it to be finalized. The government of Maharashtra took this as a final clearance and within a week the final contract - the power purchasing agreement - was signed between the government of Maharashtra and the Dabhol Power Corporation, to last for 20 years.

Of much concern was the fact that the tariff for power was denominated in US dollars. Thus, regardless of fluctuations in the dollar-rupee exchange rate, the project will always earn the same amount.

The agreement guaranteed the company a steady income for the life of the PPA, regardless of demand. Also, the state government waived sovereign immunity in its counter-guarantee. This meant that if the Maharashtra state government were unable to pay the company, the company could potentially seize any state assets in repayment of arrears.

Moreover, the central government extended a similar counter-guarantee in the event the state of Maharashtra defaulted on its payments to Enron. A counter-guarantee was signed on September 9, 1994, by the government of India, which by separate action also waived sovereign immunity.

Significantly, the agreement was treated as highly confidential and the MSEB and the DPC refused a copy to the Mumbai Grahak Panchayat, which was one of the main opponents of the project. Enron pointing out that a country "as yet unused to the phenomenon of privatization" might find the concept of confidentiality difficult to understand, but it was needed so that competitors did not receive an unfair advantage. The only problem with this reasoning was that there were no other contenders for this contract because no tenders were put in the first place.

3. Summary of concerns

From its inception, the Enron project has raised hackles: Some of the accusations include:

- There was no competitive bidding for the project - the deal was negotiated exclusively between the Maharashtra government and Enron;
- The project costs and power tariffs were higher than other power projects in India, and the cost of electricity from the DPC project would significantly inflate prices in other areas;

- The MSEB promised to buy all the high-priced power produced by Enron, whether there was demand or not, and even if cheaper power were available from its own generating plants. These contracted annual payments to Enron would amount to half of Maharashtra's entire budget expenditure;
- The DPC was assured a post tax return of 16 percent on capital investment, and there was no limit on the capital expenditure Enron could make. Indian economists calculated that the after-tax rate of return would actually be 32 percent, about three times the average rate in the US;
- There were counter guarantees from the state and central governments for payments which would have been due to DPC from the MSEB. However, the contract shields Enron from Indian jurisdiction as all disputes must be settled under English law in England;
- An assurance was given that the project would not be nationalized;
- The project authorities carried out no environmental impact assessment;
- Enron paid $20 million as "educational gifts". Critics consider these payments to be bribes to clear the project;
- The power purchase agreement between the DPC and MSEB was initially kept secret from the public, and;
- In May 1997, the Indian Supreme Court dismissed a petition calling for re-examination of the manner in which the project was cleared by the government. The judges held that it was not in the public interest to go into the validity of the project and the related contract. However, the court did not address the petitioners' main plea on whether the project's promoters had obtained the Central Electricity Authority's statutory clearance as required under the Electricity Supply Act.

The CEA in 1993 did not clear DPC's project because its tariff formula violated the stipulated two-part structure. It left the matter to the finance ministry, but the ministry washed its hands of the issue. No-one cleared it, not even when it was renegotiated. By refusing to open the issue, without stating its rationale in detail, the court in effect put its seal of approval on the largest contract in India's history.

Enron has responded to the criticism with a release: "We were not surprised that people would have questions and concerns. This was the first foreign private sector power project in India and so we expected that there would be a good deal of debate concerning the project. However, we have worked hard to advise interest parties about the plant, its benefits and Enron, and feel that now there is significant support for the project."

4. Human rights concerns

On January 25, 1999, international watchdog organization Human Rights Watch published a 166-page book alleging Enron's complicity in human rights abuses connected with the DPC.

A DPC company spokesperson was subsequently quoted in the press as saying that all the problems at the plant had been "put to rest".

Opposition to the project has been on various grounds. These include issues relating to land resettlement, compensation to affected fishermen and pollution control measures, as well as to the terms of the deal itself.

Villagers who protested faced imprisonment on trumped up charges and protesters outside the gates were beaten by police, the report said. "Through misuse of laws and abuse of power, the police have crushed open and organized dissent against the company.

"Although the vast majority of protests were peaceful and protected under international standards safeguarding freedom of expression and assembly, the state chose to silence dissent against the Dabhol Power project through arbitrary arrests, beatings, and targeted harassment of opposition leaders, rather than honestly or responsibly addressing their concerns.

"The state government is not the only actor responsible for human rights violations. The Dabhol Power Corporation paid abusive state forces while they committed human rights violations against opponents of the company's project, and the company directly benefited from the human rights violations," the report said.

5. Enron in India

In the 1980s, Enron was a regional Texas company providing pipelines for transporting natural gas. Traditionally viewed as a natural gas and oil company, it began to develop electricity projects as an outlet for its natural gas in the early 1990s. Within a short period they were a global industry leader in the development of energy infrastructure.

Enron India Private Limited (EIPL) is the wholly-owned subsidiary of Enron Corp. Set up in late 1997, EIPL is engaged in building an integrated energy and communications business in India. The current focus is primarily on the four states of Maharashtra, Karnataka, Andhra Pradesh and Gujarat. Enron is the largest single foreign investor in India's energy sector.

The Dabhol Power Corporation (DPC). The DPC started as a 100 percent foreign-owned private limited liability company incorporated in India by Enron, Bechtel Enterprises Holdings and General Electric Capital Structured Finance Group. The three partners controlled DPC through a chain of companies based in Mauritius, a tax haven. Enron held 80 percent of the shares of DPC, while Bechtel and GE each hold 10 percent.

In November 1998, the Maharashtra State Electricity Board bought a 30 percent equity in the DPC for $137 million. The MSEB raised most of the money through two bond issues. Its option to buy the stake had been a part of the renegotiated deal.

With MSEB joining the DPC, Enron's stake dropped to 50 percent, with the remainder shared equally between GE Capital and Bechtel Enterprises (10 percent each).

The MSEB's investment was made through Maharashtra Power Development Corporation Ltd (MPDCL), a company launched by the MSEB earlier in 1998. The board

purchased the equity from Enron Mauritius Company, the investment company of Enron International.

Since the financial closure of second phase of the project, however, the MSEB's stake has been diluted to about 16 percent of the overall project, with Enron's increasing to 64 percent.

Enron's financing package for Dabhol Phase II, a complex transaction totaling $1.87 billion, has won international praise as one of the best international project financing deals ever put together. Enron said they faced many obstacles due to India's uncertain political and economic climate.

The $1.87 billion financing includes five loans totaling $1.414 billion and an equity investment totaling $452 million. Indian financial institutions, with the Industrial Development Bank of India (IDBI) acting as lead arranger, provided rupee loans equivalent to $333 million. The participants in the rupee loans are IDBI, ICICI Ltd, State Bank of India (SBI), the Industrial Finance Company of India Ltd and Canara Bank.

Commercial banks, acting as global coordinators for a $497 million syndicated loan are SBI, ABN AMRO, Credit Suisse First Boston (CSFB), ANZ Investment Bank and Citibank N A. Canara Bank, Bank of America, Development Bank of Singapore and Credit Lyonnais acted as senior lead arrangers for this loan. The Overseas Private Investment Corporation (Opic) also provided $60 million in project finance loans.

An export credit loan of $433 million was arranged by the Japanese Export Credit Agency (ECA) providing $258 million and commercial banks providing $175 million. The commercial banks are insured by the Japanese Ministry of International Trade and Industry (Miti). Fuji Bank is the agent for the $433 million loan from the Japanese ECA. In addition, an export credit of $90.8 million was provided by a syndicate loan of $90.8 million from commercial banks. This loan is insured by Office Nationale du Ducroire, Belgium (OND), and ABN AMRO is the agent for the commercial banks providing this loan. Both export credits were provided guarantees by Indian financial institutions.

The first phase of the project completed financing in December 1996. A multi-fuel facility, the plant is capable of using either naphtha or distillate in the first phase and will use natural gas once the second phase is complete.

Phase II sets many precedents in India:

- It is the first power project in the country to involve importing liquefied natural gas (LNG) as a fuel source and constructing an LNG terminal;
- It is the largest cross-border loan transaction executed in India involving the country's financial institutions, Belgian and Japanese export credit agencies and a number of commercial banks. Altogether more than 40 lenders were involved in the project;

- It is the largest external commercial borrowing ($1.082 billion) sanctioned by India's Ministry of Finance, and;
- It is the first time Indian banks, such as the State Bank of India and Canara Bank, made loans of US$225 million in both dollars and rupees and made guarantees to a project finance venture in India.

Other Enron initiatives in India:
LNG terminal at Dabhol: In 1993, India's government approved Enron's $250 million development of a LNG terminal at the Dabhol Power plant site. In 1997, Enron received permission to expand the terminal, which will process 5 million metric tons of LNG per year. Enron will transport the regasified LNG to its affiliate, Dabhol Power Corporation, for use in its power plant, and the remainder to other bulk users. Enron plans to use the terminal as a base from which to develop a LNG distribution business throughout industrial western India via a pipeline network. Enron currently has 20-year contracts for 2.1 million tons per year of LNG with Oman LNG (1.6 million tons per year) and Abu Dhabi Gas Liquefaction Company Ltd. (Adgas) (480,000 tons per year). LNG deliveries are expected to commence fourth quarter 2001.

Metgas pipeline project: Enron is in the early stages of developing a natural gas pipeline project in Maharashtra. Through its marketing and pipeline affiliates, MetGas will import and re-gasify LNG into the Dabhol terminal. The proposed pipeline will then transport natural gas from Dabhol to customers north of Dabhol. Gas supply agreements (GSAs) are being concluded with industrial and commercial users in Maharashtra.

LNG vessel construction joint venture: In January 1999, an Enron affiliate and Mitsui OSK Lines, Ltd (MOL) signed a joint venture agreement to construct, own and operate a 135,000 cubic meter LNG carrier. The Shipping Corporation of India (SCI) acquired 20 percent equity in the venture in January 2000. The vessel will be dedicated to LNG supply from the Middle East to Dabhol. The first LNG deliveries are expected in fourth quarter 2001. Mitsui will manage the vessel together with the SCI.

Gas Authority of India (Gail): In November 1999, Enron participated in the Indian government's disinvestment program and purchased 5.1 percent of Gail through a Global Depository Receipt offering. Gail operates the country's sole long-distance gas pipeline, which runs from the offshore gas fields in the Bombay High area to the capital New Delhi.

Broadband services: Joint venture projects to gain access to lay fiber-optic cables delivering broadband applications countrywide. It is presently engaged in a joint venture with the MSEB and Global Telesystems to bid for a 5,000 kilometer fiber-optic backbone in Maharashtra.

However the cash strapped state electricity board is likely to reduce its equity stake in the venture from 40 to around 15 percent.

Offshore fields: Enron India has a 30 percent stake in three offshore gas and oil fields in

Panna, Mukta and Tapti. Enron India operates three offshore oil and gas fields in a joint venture with Oil & Natural Gas Co (ONCG) and Reliance Petroleum Ltd. The Tapti, Panna and Mukta fields are located off the coast of Gujerat and Maharashtra. It holds a 30 percent stake in each field, while ONGC and Reliance hold 40 percent and 30 percent stakes respectively.

6. India's energy sector

India is the world's seventh largest energy consumer and has drawn up plans for major energy infrastructure investments to keep up with increasing demand as the country becomes more industrialized and the economy expands.

In the mid-1990s, India's real GDP growth rate was 7.4 percent (1995-96). While sanctions imposed by the United States over nuclear tests helped slow growth to 4.6 percent in 1998-1999, growth rebounded to a projected 6.0 percent for 1999-2000. Real GDP growth is projected at around 7 percent for the next few years. The increase in demand for power is expected to match GDP growth, at 7.5 percent annually over the next decade.

In particular, India has identified the urgent need to increase the supply of electric power and imports of liquefied natural gas to support power projects. India also is the world's third-largest producer of coal and relies on coal for more than half of its total energy needs.

Electricity

India is investing heavily in new electric power generation capacity as current generation is below peak demand. Affordable electricity has been recognized as a major factor in India's food self-sufficiency drive because it is used to power farm irrigation pumps. Although about 80 percent of the population has access to electricity, power outages are common.

The government has targeted capacity increases of 47,000 MW during the period covered by the current Five-Year Plan, between 1997 and 2002, and 111,500 MW by 2007. As of 1999, total installed Indian power generating capacity was in excess of 100,000 MW.

Power shortage is currently estimated to be about 11.3 percent of peak load and 8.3 percent of energy supply throughout India. Despite government plans, it is estimated that only about 25,000 MW of extra capacity will be realized by 2002. The Indian Power Ministry estimates investment of $100 billion is needed in the sector. This does not include about $5 billion in investment to transmit the additional capacity with adequate reliability and quality.

Across the country the power sector is plagued by inefficiencies, resulting in severe shortages and unreliable service. The sector suffers heavy financial losses and is a drain on public resources through poorly targeted subsidies, especially to farmers.

Pricing of electricity is highly politicized. Farmers, for example, many of whom are rich

and influential, are heavy users of electricity but pay almost nothing. Also, a lot of electricity is wasted because charges for irrigation pump use, for example, are based on the capacity of the pump, not its usage. There is no incentive to conserve electricity. Another problem is the high level of transmission and distribution losses. Average utilization of generating capacity stands at only slightly more than 50 percent.

Theft of electricity by industrial units owned by powerful people is a major problem. In New Delhi alone, about $50,000 worth of electricity is lost every hour.

India's nine state electricity boards (SEBs), which run the power distribution infrastructure and most current generating capacity, are in poor financial health, which has limited their ability to fund investment in new infrastructure. In 1998-99 they had an average rate of return on assets of -21.2 percent.

Some progress at reform has been made. A Central Electricity Regulatory Authority (CERC) was established in August 1998 to regulate inter-state tariffs and transmission issues. Legislation making the establishment of State Electricity Regulatory Commissions (SERCs) mandatory, and prescribing a minimum level for agricultural tariffs, was defeated in parliament due to political sensitivities.

Nonetheless, states have been encouraged through various incentives to set up Sercs to establish intra-state power tariffs.

The government accepts that unless the problem of the financial viability of the SEBs is tackled, private capital will not flow in. In response, following World Bank guidelines, the government is moving towards a different structure of the power sector.

A three-pronged restructuring involves unbundling - separation of generation, transmission and distribution functions of state utilities; independent regulation; privatization of generation, transmission and distribution units.

Several SEBs have unbundled their operations into separate generation, transmission and distribution companies.

In July 1998, the government eased rules related to foreign investment in the power sector. Proposals for investments up to 15 billion rupees (about $350 million) involving up to 100 percent foreign equity are now approved automatically. Automatic approval is given for investments in generation or distribution from hydroelectric, coal, lignite, oil or gas power plants, but not for nuclear plants and associated distribution networks. The earlier policy had allowed for only up to 74 percent foreign equity.

India's government is encouraging the construction of mega-projects defined as plants with capacity of more than 1,000 MW for thermal plants and more than 500 MW for hydroelectric plants, and which sell power across states.

The decision to support "mega projects" has not been without controversy. Many smaller

independent power producers (IPPs) have complained that the package of customs duty exemptions for equipment to larger projects are not available to them, putting them at a disadvantage.

Somel power experts argue that it would be far cheaper in the long run to make state-run utilities more efficient than to bring in foreign investors who they say have little understanding of India's power system.

National grid: While India currently does not have a unified national power grid, it plans to link the SEB grids eventually, and has set up a state company, Powergrid, to oversee the unification. India also plans to establish national and state level regulatory bodies to set tariffs and promote competition.

In October 2000, the Asian Development Bank (ADB) approved a $250 million loan for the development of the national grid. The ADB also extended its partial credit guarantee for raising another $120 million from commercial banks.

The ADB is financing 51 percent of the total project cost of $491.5 million equivalent. The balance will be funded through commercial co-financing, domestic borrowing and Powergrid's internal resources. The ADB's loan will come from its ordinary capital resources and is repayable over 20 years, including a grace period of five years. The project is scheduled for completion in September 2005.

The national grid is aimed at improving efficiency through the sharing of reserve margins, trading of surplus generation and long-term power transfer between regions with low-cost hydropower or coal resources.

The ADB project also supports ongoing reforms to improve governance, strengthen newly-established regulatory mechanisms, build long-term institutional capacity, improve efficiencies and facilitate private sector participation in power transmission.

In addition, the project enhances the autonomy of Powergrid and facilitates its commercialization by introducing it to international capital markets and private sector participation.

At present, the transmission links between India's five regional electricity grids are limited. Powergrid will construct and operate regional system coordination centers to improve grid coordination and facilitate bulk power trading between state electricity boards. The project will upgrade and expand 400 kilovolt (kV), 220 kV and 132 kV transmission systems to transfer additional power, improve reliability and enhance the utilization of existing power plants, and to transmit the power generated by the power stations of central power utilities and independent power producers.

States which implement power sector reforms will receive preference for investment by Powergrid. The ADB's support of Powergrid is part of a move to encourage private sector involvement in the power sector. In December 1999, the ADB approved a technical

assistance grant for $600,000 to assist Powergrid in competitively soliciting for private sector implementation of the Vizag-Vijayawada 400 kV transmission line. When implemented, this line will be the first extra high-voltage line established by the private sector for a central or state power utility.

Other developments: The power sector in the industrialized western state of Gujarat will undergo sweeping reforms with two ADB loans totaling $350 million, approved in December 2000.

The loans will be used for the Gujarat Power Sector Development Program, which has two components. The first, financed by a $150 million loan, will restructure the sector by establishing an independent authority to set and regulate tariffs, rationalizing power charges and bring in new management practices.

The second component is a $200 million project loan to construct transmission lines and substations for private and public sector power projects. The project is due to be completed by end 2004.

With World Bank assistance, two states (Orissa and Haryana) have begun to implement reforms. Two other states (Andhra Pradesh and Rajasthan) are also participating in a World Bank reform program.

Withdrawals: At least four foreign companies, including Electricite de France (EDF), Europe's largest electricity company, have pulled out of $3 billion worth of Indian power projects, citing long delays and a lack of payment guarantees.

EDF, US-based Cogentrix Energy Inc, Bayernwerk Vew and Daewoo Power (India) Ltd, a subsidiary of Korea's Daewoo Corp, have withdrawn from projects. The main problem is the state boards are unable to give secured revenue streams to the projects as they are running at a loss.

EDF withdrew as the co-promoter of the 1,082 MW Bhadrawati power project in Maharashtra. It pulled out citing an "inordinate delay in getting clearance from various authorities, a very high coal price sought by the coal supplier and lack of proper commitment for escrow arrangements".

Daewoo Power (India) withdrew from the 1,070 MW Korba East Thermal power project in Madhya Pradesh as the local electricity board was unable to provide payment security.

Cogentrix Energy announced in December 1999 that it was withdrawing from the planned 1,000 MW Mangalore coal-fired project. Cogentrix cited lengthy delays stemming from bureaucratic hurdles and public interest litigation.

Cogentrix said in a statement that despite being invited in by the government in 1992, the $1.3 billion project in the state of Karnataka was no longer feasible. The plant was to be a model facility, bringing in 1,000 MW of much needed electricity.

One of the other partners in the project, China Light and Power Limited, pulled out in 1995 following a dispute with the state government.

The project was then subject to legal proceedings after a case was brought alleging kickbacks were paid to get approval. A verdict from the Supreme Court on that case is still pending.

Environmental groups also went to the courts, saying the proposed plant could be harmful to local wildlife.

Nuclear power

In September 2000, the Atomic Energy Commission (AEC) of India said the country's nuclear power program was progressing satisfactorily. It said two units each of 220 MWe would become critical "soon". Construction of two indigenously-designed 500 MWe pressurized heavy water reactor units at Tarapur was in full swing, it said.

Preparation of a detailed project report for the construction of two 1,000 MWe reactors at Kudankulam in Tamil Nadu, in collaboration with Russia, is expected to be completed this year.

(Special to Asia Times Online)