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Case Study

Dabhol Power Project, India

Introduction

Dabhol is a 2,015 MW, $2.8 billion gas-fired power project located 100 miles south of Mumbai in Maharashtra State, India. Maharashtra is India's third-largest state and the main commercial and industrial center of India.

It is one of the most controversial power projects built in India

Project Background

Since independence in 1947, India has pursued an economic policy based on protectionism, state control, and self-sufficiency.

In 1992 India embarked on a series of market reforms and economic liberalizations aimed at opening key infrastructure sectors (power, rail, roads, ports, etc.) to the private sector with a view to increasing foreign direct investment.

The Indian government private power initiative was based on a strategy to fast-track the first eight power projects by foregoing an open, competitive tendering process and instead negotiating bilateral deals with IPPs.

This was done even though India had no track record of foreign direct investment, sub-investment-grade sovereign credit ratings and there were cases of state versus central government conflicts (in India the state governments controlled 65% of power generation while the central government controlled 31%);

Project Rationale

The rationale was that India needed to make a statement to the international investing community that India was open for business and by fast-tracking these initial pioneering projects it would pave the way for follow-on private sector investment in infrastructure.

It also reflects in part, India's weak negotiating position competing for scarce capital and the need to create favorable market conditions to attract foreign investors. India also represented significant country risk for foreign investors with sub-investment-grade credit ratings, weak macroeconomic fundamentals (GDP per capita was only $371), and low foreign currency reserves (only two weeks of import cover).

The investment return terms of the private power initiative launched by India were inherently flawed. India offered foreign investors a 16% return on equity (ROE) for private power projects, which achieved a minimum 68.5% plant load factor (PLF). ROE in turn is based on net worth, which is driven by project costs—effectively creating no incentive to minimize project costs.

The Technical Details Of The Plant – Summary

Dabhol is a 2,015 MW, $2.8 billion gas-fired power project located 100 miles south of Mumbai in Maharashtra State, India. Maharashtra is India's third-largest state and the main commercial and industrial center of India.

Originally conceived as a single project, Dabhol was subsequently divided into two phases: Phase 1 consisted of a 695 MW distillate oil-fueled power plant and phase 2 a 1,325 MW gas-fired power plant, with phase 1 also converted to gas-fired generation. The capital costs for phase 1 were $920 million with phase 2 capital costs $1.9 billion.

The rationale for a 2,015 MW power plant was the LNG fuel supply to be sourced by Enron from Qatar, which would require a minimum offtake capacity of about 2,000 MW to support the economics and capital cost for the investment and construction of a single LNG train with a nameplate production capacity of 2.5 million tons of LNG.

Project Partners

Dabhol was developed in the mid-1990s by Enron Corporation, at the time one of the world's largest developers of greenfield energy projects in emerging markets and the largest natural gas pipeline company in the US, with revenues of $9 billion.

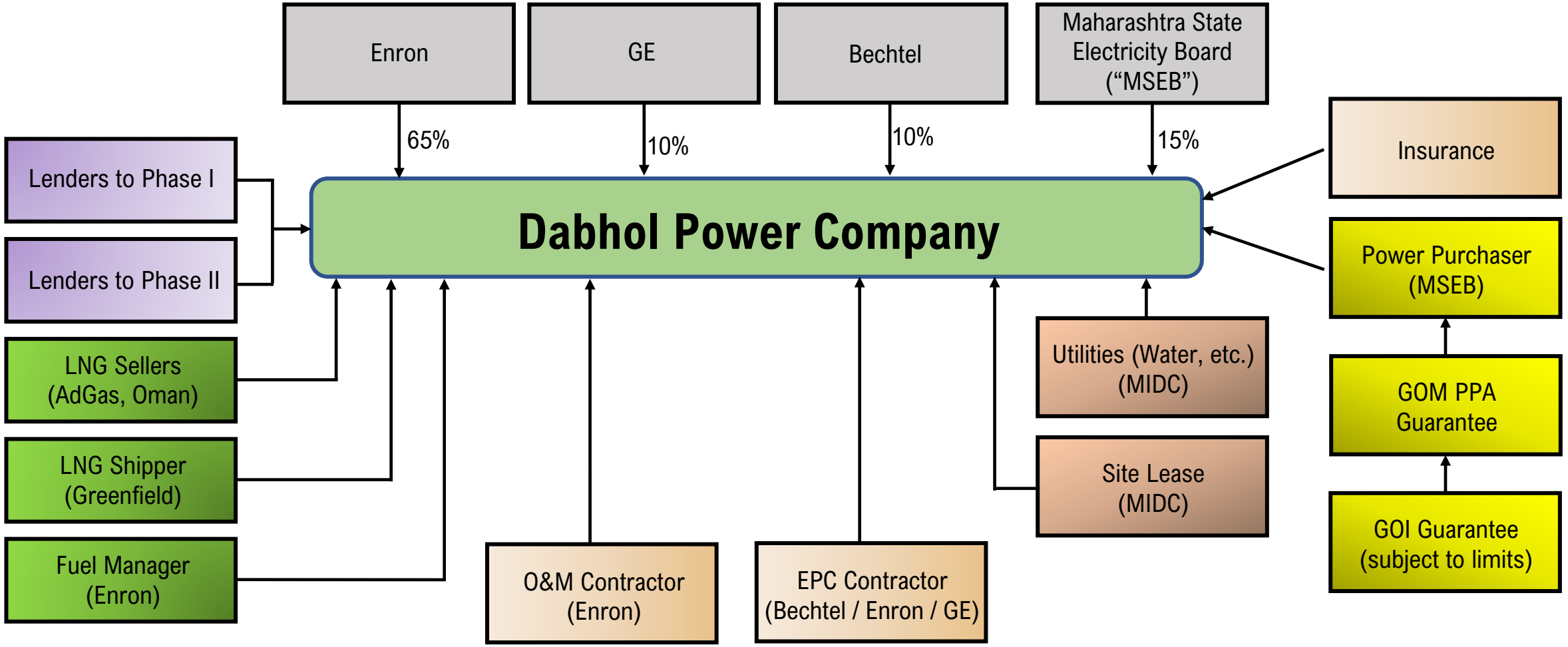
GE and Bechtel also partnered with Enron as equity investors on the Dabhol project, with Bechtel acting as the general construction contractor and GE supplying the gas turbines for the project. Enron performed multiple project roles, including construction management, project operator, fuel supply manager, and project engineering.

Project Lenders

Dabhol had a very aggressive timeline for negotiating and signing key project documentation with India authorities—the PPA and various other key project documents were executed in December 1993, barely 15 months after Enron began investigating the possibility of undertaking a power project in India.

Financial close followed in January 1995 with the project financing of $643 million provided by a consortium of international and local lenders comprising the Export-Import Bank of the US ($298 million), the Overseas Private Investment Corporation, or OPIC ($100 Million), local Indian banks ($95 million rupee loan equivalent), and international banks led by Bank of America and ABN Amro ($200 million).

Dabhol Power Project Structure Chart



Early Challenges

It was evident that the rushed negotiations and the resulting lopsided nature of the project risk-return allocations in favor of Enron contributed to an inherently flawed project outcome. Enron and the project lenders placed material reliance on the government of Maharashtra (GOM) guarantee and the government of India (GOI) counter-guarantee to credit-enhance the MSEB payment risk. They however failed to “look through” the PPA and other project agreements to analyze and assess Dabhol's fundamental commercial viability (versus contractual viability) and this became a fatal due diligence error.

At the time, India had only just emerged from 40 years of economic nationalism and protectionism and had an unproven track record of economic liberalization. The Maharashtra State elections in April 1995 indicated that the pro-Dabhol Congress Party would cede power to the nationalistic BJP party, however, Enron pressed ahead with financial close and the start of construction of phase 1 of Dabhol.

It was glaring that the arrogant failure to understand and anticipate local political sentiment was a major blind spot and proved to be an Achilles' heel for the Project. Maharashtra State elections in April 1995 resulted in the nationalistic BJP party ousting the incumbent Congress Party. BJP ran on a platform of industrial nationalism and jingoistic protectionism. The BJP specifically targeted the cancellation of the Dabhol project if elected. An investigation into the Dabhol project by the BJP resulted in a decision to cancel Dabhol, and after that, project construction was put on hold.

Early Challenges

The key grievances were the high cost of power, the excessive returns that Enron was receiving (26.5% IRR), and allegations of bribery and corruption stemming from the lack of transparency of the negotiated deal and a lack of competitive bidding.

Following intensive negotiations between Enron, the government of Maharashtra (GOM), and the government of India (GOI), Enron agreed to reduce its project returns to 25.5% and cut project costs (the lower project returns were largely offset by a fall in steel prices and the resulting reduction in EPC costs), and construction recommenced in January 1996. Phase 1 of Dabhol reached commercial operations in 1999. It was clear that Dabhol's 2,015 MW large size and profile exposed the project to heightened execution, integration, and political risks.

An incremental approach by leading with a smaller project to establish a track record and maximize the chances for successful execution would have been more prudent. Enron's rationale for project size was driven by a singular natural gas strategy built around sourcing LNG from Qatar. This is in addition to the fact that no political risk mitigation strategies such as seeking a local partner or including an MDB in the finance plan was carried out by Enron.

Missteps Made By The Project Partners (1/3)

In the construction of the Dabhol project, there was a project cost fixed price, date-certain EPC contract from GE and Bechtel with liquidated damages payments for delay and performance shortfall. In the absence of a proven technology, considerations were not given for project cost overrun contingencies.

From the contractual perspective, there was a 20-year take or pay power purchase agreement (PPA) with the Maharashtra State Electricity Board (MSEB). The GOM provided a guarantee of MSEB's payment obligations under the PPA, and the GOI in turn counter guaranteed GOM guarantee obligations. Most State Electricity Boards (SEBs) in India were technically insolvent (only two SEBs with positive ROI) due to 30% technical and non-technical losses arising from electricity theft and poor transmission and distribution line infrastructure, poor revenue collection (SEBs only achieved 78% cost recovery), and very low PLF (56%).

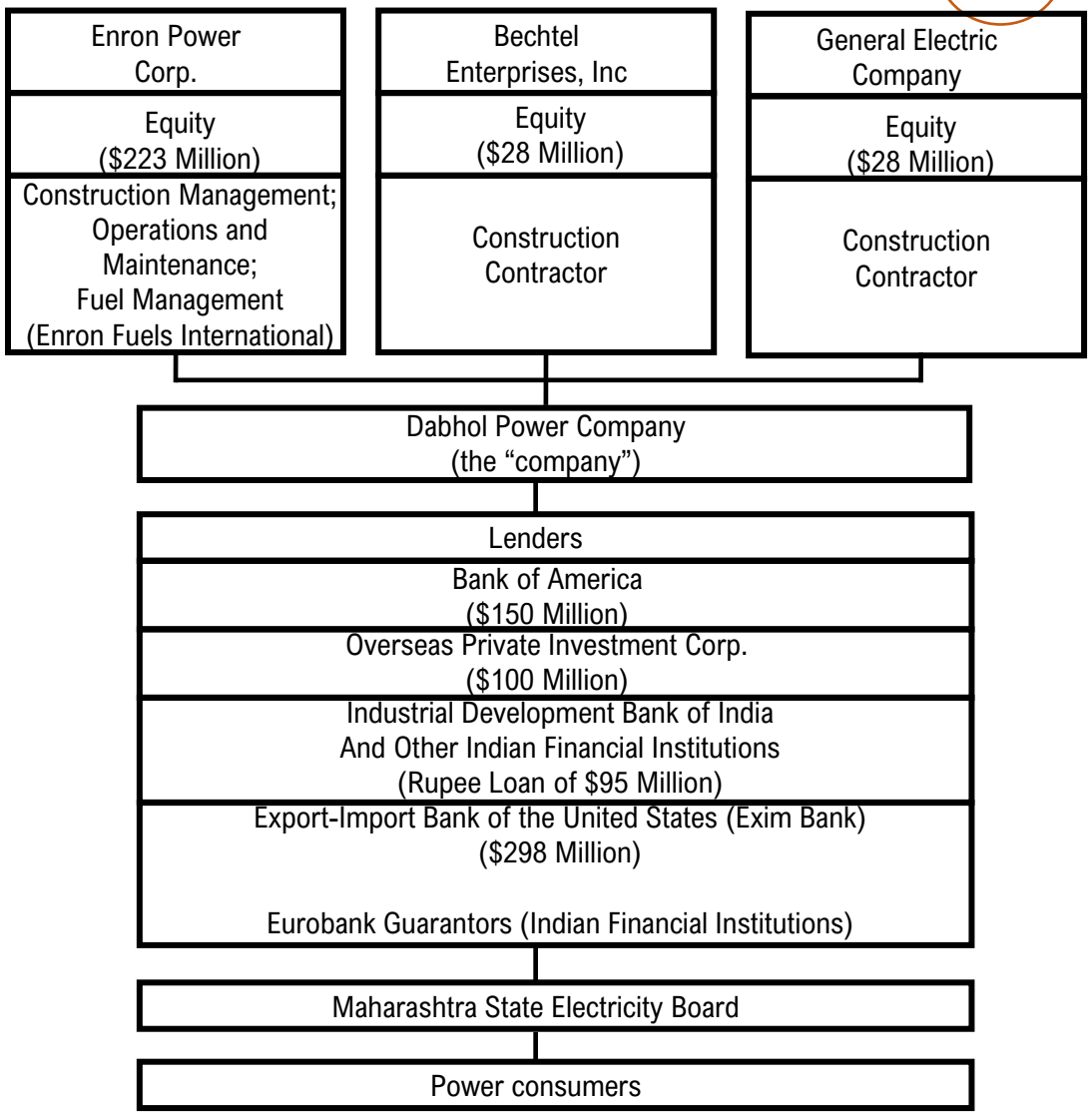
The MSEB absorbed revenue and dispatch risk via a firm, take or pay PPA with fixed capacity payments sized to cover fixed operating expenses as well as covering full debt service and providing a return to equity to investors regardless of actual electricity dispatch. The MSEB was also required to take foreign exchange risks on fuel cost increases as well as indexed power tariff price adjustments for changes in the USD/rupee exchange rate.

The firm capacity payment was payable by the MSEB regardless of actual electricity production and dispatch and was sized to cover Dabhol's fixed operating costs as well as pay debt service and provide a minimum return on equity to shareholders. On the other hand, Enron's IRR for Dabhol was 26.5%, well above typical equity returns in the high teens/low twenties for emerging markets project finance deals at the time. This IRR level was excessive given that most project risks were allocated to the MSEB

Missteps Made By The Project Partners (2/3)

Furthermore, MSEB (and pretty much all the Indian SEBs) was technically insolvent and was a financially weak off taker as it was only recovering 78% of its cost of power generation, transmission, and distribution from its customers and had technical and non-technical line losses approaching 30%. Clearly MSEB did not have the financial wherewithal to stand behind the 20-year power purchase obligations of a 2,015 MW USD-denominated power plant

The Dabhol project included financing from US financial institutions (Export-Import Bank of the US and OPIC), it did not include any MDBs, such as the IFC or the ADB, which would have provided stronger political risk mitigation. The World Bank in reviewing the Dabhol project and the PPA on behalf of GOM refused to support or endorse the project citing that it was "economically unviable." The World Bank's analysis determined that Dabhol's installed capacity was too large, the power cost too expensive, and the agreements economically lopsided in favor of Enron.



Missteps Made By The Project Partners (3/3)

The World Bank advocated that India first undertake privatization and reform of the electricity sector aimed at de-bundling generation, transmission, and distribution and put the SEBs on a stable financial footing before proceeding with IPPs. These considerations were not heeded by Enron.

On pricing, Dabhol's cost of power to MSEB was high—7.05 cents per kWh compared to average MSEB power tariff of 3.34 cents per kWh—raising a question regarding MSEB's willingness and ability to pay the power price under the PPA.

The level of electricity price cross-subsidization between agricultural and residential consumers and commercial and industrial users (most rural and agricultural consumers paid little or nothing for electricity consumption), and MSEB's resulted in failure to recover the full costs, and this distorted the electricity price comparison with Dabhol's fully loaded cost of electricity.

Dabhol was designed to operate as a base load plant and as such needed to run at 95% capacity to achieve optimal project economics; operating below 95% base load capacity results in much higher average electricity costs per kWh.

Outcomes Of The Dabhol Power Project

Dabhol was beset with problems from the outset, and in retrospect it was doomed to failure. As already explained, within months of financial close in January 1995, elections in Maharashtra State resulted in the nationalist BJP party coming to power.

The BJP made the cancellation of the Dabhol project a top priority, which in turn ensured the project was rendered a political football. The aggressive—and one-sided—commercial negotiations that Enron drove with the GOM and the GOI further exposed Dabhol to these heightened political and regulatory risks.

Almost immediately following commercial operations in 1999, the MSEB was struggling to make payments under the PPA due to the very high price of electricity arising from a devaluation of the Indian rupee, which increased the imported fuel costs, and the indexation of the USD-denominated PPA power tariff.

MSEB delayed PPA payments during 2000 and only made payment of arrears after demand for payment by Dabhol. However, the writing was on the wall, and MSEB subsequently ceased making payments by attempting to terminate the PPA on the basis of a technicality that Dabhol had failed to achieve full base load capacity within the start-up time stipulated by the technical specifications in the PPA. Dabhol countered with threats to take legal action and/or take MSEB to international arbitration to terminate the PPA and seek full repayment for the $3 billion Dabhol investment.

Eventual Collapse Of The Project Sponsor – Enron

These events were overtaken and superseded by the collapse and subsequent bankruptcy of Enron Corporation in December 2001 (the largest corporate bankruptcy in US history at the time). Enron was an energy company, but the corporate culture was more akin to an investment bank. Project developers received bonus payments tied to executing project deals, which were then handed over to the project management team; there was no accountability for the actual economic performance of the project deals. Enron was a darling of Wall Street in the late 1990s with the share price trading at PE multiples north of 50, more in line with a technology company than a mature energy industry player.

The need to beat Wall Street earnings estimates every quarter fueled a corporate culture of short-term(ism). Enron also adopted a one-size-fits-all approach to project development regardless of the cultural nuances and challenges of disparate emerging markets. For example, the company rarely took a local partner when entering new developing markets and tended to negotiate aggressive terms without regard to stakeholder alignment and a balanced and fair sharing of project returns to ensure project sustainability.

The IFC's adage, “If it is not fair, it is not sustainable” was never adhered to by Enron. Enron's paltry concession in negotiations with the GOM was to reduce the companies' IRR from 26.5% to 25.5%, demonstrating an inability to fully comprehend the need for an equitable sharing of project economics among project stakeholders to ensure project sustainability. The story of Dabhol's and Enron's collapse is ultimately a familiar one of ego and hubris. Enron also did not pursue political risk mitigation strategies such as seeking a local partner or including an MDB in the finance plan.

The Aftermath Of Enron's Collapse

Subsequently, Dabhol entered a four-year period of legal wrangling among project stakeholders and subsequently, in 2005, a new deal was negotiated, which saw Dabhol effectively nationalized—GE, Bechtel, and Enron exited as shareholders-to-be replaced by an Indian energy company while the international lenders were bought out by the Indian lenders, who also agreed to a debt-for-equity swap.

Dabhol to this day has been plagued by financial and technical issues (inability to secure a gas supply allocation, operational issues with the turbines, failure to secure buyers for 100% of the power, non-market power price, etc.), has failed to achieve the 95% base load production capacity, and has operated sporadically and intermittently. Dabhol meets the classic definition of a "white elephant" project.

Questions/Discussion Points

- What were the political risks that Enron, GOM and GOI failed to take note of regarding the Dabhol Power Project?
- From the case study, state the measures that ought to have been taken to mitigate such political risks.
- What are the contractual and revenue risk highlighted in the case study and what were their effects on the project and what modalities could have been taken to avoid the contractual and revenue risks?
- Do you feel the business model and approach of Enron was an additional risk to the Dabhol Project and what modalities could have avoided these risks?

Further News on the Dabhol Power Project

News / Cities / Mumbai / RGPPL plans Dabhol power plant revival, inks purchase agreement with Railways

Premium

RGPPL plans Dabhol power plant revival, inks purchase agreement with Railways

The plant was shut since December 2013 for want of gas and financial constraints.

Written by MANASI PHADKE
Mumbai | June 29, 2015 00:19 IST

NewsGuard

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"The Ratnagiri Gas Power Project Ltd (RGPPL) has drafted a comprehensive plan for the revival of the debt-ridden Dabhol power plant, which has been lying defunct for years, and is in the process of finalizing a power purchase agreement with the Indian Railways."

Source: Indian Express, 2015

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Dabhol power project to be split into two companies to revive plant

2 min read • 30 Sep 2015, 08:47 PM IST

PTI

The project will be split into separate power and LNG companies to revive the plant, originally built by the now bankrupt US energy firm, Enron

"The ₹ 12,000-crore Dabhol power project will be split into separate power and liquified natural gas (LNG) companies in an effort to revive the plant which was originally built by the now-bankrupt US energy firm Enron."

Source: Live Mint, 2015

Further News on the Dabhol Power Project

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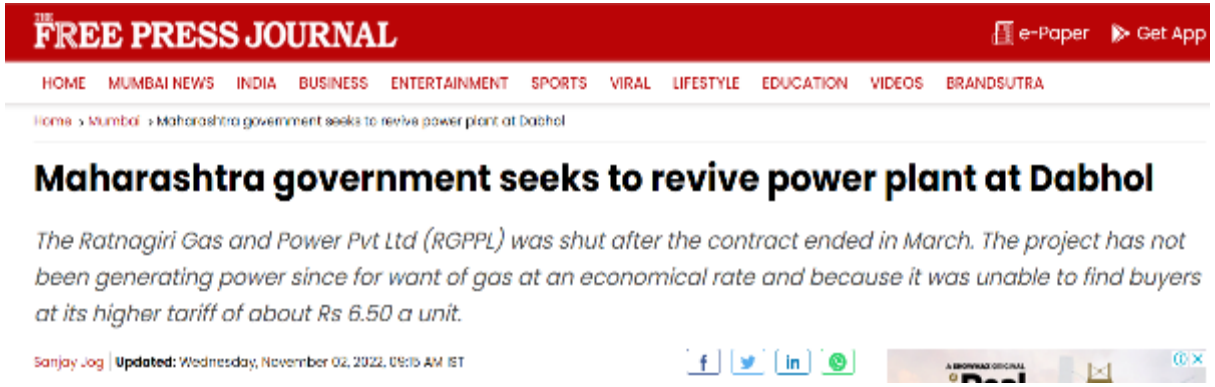
Dabhol power plant to be revived after more than two years

Updated - January 22, 2018 at 09:58 PM. | New Delhi, September 30

"Ratnagiri Gas and Power Private Ltd, the erstwhile Dabhol project, will fire up its power plant on November 1, more than two-and-a-half years after fuel supply constraints left the asset stranded."

Source: Business Line, 2018



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Home › Mumbai › Maharashtra government seeks to revive power plant at Dabhol

Maharashtra government seeks to revive power plant at Dabhol

The Ratnagiri Gas and Power Pvt Ltd (RGPPL) was shut after the contract ended in March. The project has not been generating power since for want of gas at an economical rate and because it was unable to find buyers at its higher tariff of about Rs 6.50 a unit.

Sanjay Jog | **Updated:** Wednesday, November 02, 2022, 09:15 AM IST

"The Aluminium Stewardship Initiative (ASI) announced this week the ASI Performance Standard V2 (2017) Certification with Provisional status of Mozal SA's Maputo aluminium smelting plant in Mozambique, becoming the first such certification of an aluminium facility in sub-Saharan Africa."

Source: Free Press Journal, 2022

Key Latest Summary on the Dabhol Power Project

Key updates from the Dabhol Power Project include;

- The **problems** stemming from the missteps earlier highlighted in this case study **have proved persistent**.
- Following the collapse of Enron, **the plant came to be controlled by** Ratnagiri Gas and Power Private Limited, a company owned by **the government of India**, and has operated as such ever since.
- The government of India **has attempted unsuccessfully**, a few times, to **revive the plant** and bring it into profitability.
- In one of those attempts, **the plant was split into two entities** – an LNG facility, and the power plant.
- However, **the project remains shut** due to two major problems – its inability to purchase gas at an economical rate, and its inability to find off-takers, due to its relatively high tariffs.

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