Racing to meet population growth, India expanded at a scorching rate of 9.4% during the last fiscal year—its second fastest rate since independence. Economic growth has brought new sources of demand and a rising middle class. Correspondingly, according to data compiled by the UK's BBC, Indian consumption of oil, now at 3% of global output, is expected to rise to 10%. India's dependence on oil imports, says the International Energy Agency (IEA), is expected to increase from 70% to 91.6% by 2020. Similarly, overall demand for gas will rise dramatically. Timothy Holder, director, and Jonathan Aiken, analyst, at Taylor-deJongh explore the challenges facing the Indian gas sector by looking at the Dabhol plant in the state of Maharashtra, as a point of departure before considering current developments and possibilities.

India traces a new path to energy security

INDIA'S GOVERNMENT PLANNERS, utility regulators and private businesses are casting a long net in what has become a global search for energy security. As India expands its search for new sources of energy, it is increasingly competing with China in trying to secure access to upstream resources. India needs secure energy resources to develop and there are real concerns that any potential energy shortfalls could cast a pall over economic growth rates. Recent announcements by the Oil & Natural Gas Corporation (ONGC) and the Gujarat State Petroleum Corp (GPSC) that gas reserves in the eastern portion of the country are judged at 2trn cubic feet (cf^3), instead of the previous 21 cf^3, underline the domestic shortfall India faces. Highly subsidised domestic power markets compound the problem and are at odds with market priced upstream resources and new competitive pressures. In seeking to meet a forecasted annual growth in the demand for gas of 5.1% that is expected to total 7.7bn cf/day in 2025, India can point to past failures and current successes.

Enron's Long Shadow

The740 MW Dabhol plant, constructed in the 1990s as an integrated LNG terminal and power plant, joined together a wide consortium of lenders, construction firms, equity participants and export credit agencies (ECAs). Noteworthy members of this group included Enron Corporation, General Electric Capital Corporation and Bechtel Enterprises. The Washington-based Overseas Private Investment Corporation (OPIC) provided $160m in debt and $231.8m in reinsurance.

Dabhol started operations in 1999 but trouble quickly followed. The plant depended on imports of naphtha that were deemed expensive, given its correlation with higher oil costs. In 2001 the Maharashtra State Electricity Board (MSEB) refused to make further payments on the plant, at the same time accusing Enron of allegedly excessive and unfair pricing of its electricity, Exacerbating the situation, projected demand for power had fallen short of expectations and state revenues were insufficient to meet

the contract terms. The MSEB's refusal to honor the power purchase agreement (PPA) and the Government of India's default on the counter-guarantee of the PPA undermined investor confidence. Combined with aggressive litigation and problematic initial PPA terms, what would have been the largest independent power generation facility in the world ground to a standstill. While the size and complexity of Dabhol certainly added to its challenges, one of the main lessons emerging from the plant's problems has been the need to clarify the relationship between the state and private sectors in the energy chain.

This July, Dabhol received its first supply of imported LNG, allowing it to shift away from expensive naphtha and raising hopes of the long term viability of the restructured project. The plant has been renamed the Ratnagiri Gas and Power Pvt Ltd and gas supplies are being received through a 581km pipeline, transporting LNG imported from Qatar's RasGas project. Nevertheless, the project is not out of the woods. Recent court battles over the pricing of fuel are still wending their way through the courts, leading to intermittent production and several false restarts. The raft of legal challenges and the uncertainty created by them constitute another barrier to new investment.

Removing the blot of the Dabhol plant, regardless of these delays, will mark a significant psychological demarcation and a new chapter for energy projects in India. The debates over pricing, sourcing and regulation are a healthy, if painful, process that addresses pressing (and as of yet) unresolved questions. New plans for private investment in LNG or other power projects will likely face an improved environment as the Indian market matures, but only if the tangled web of multi-layered government regulation is clarified.

Indeed, reform of the energy sector has begun partly because of the Dabhol experience and is driven by the need for continued investment. Since the start of the decade, generation and distribution have been decoupled and the new Electricity Act 2003 has increased competition while strengthening the wholesale energy market. Generation has been de-licensed, long term power procurement is now to be on a competitive basis and the government's role has been curtailed.

The need for reform has been pushed by an urgent need for new investment in capacity. Seven new 4,000 MW plants are in the pipeline, with an estimated cost of $3bn to $3.6bn, likely requiring the involvement of ECAs and foreign sources of capital. India's largest source of foreign direct investment (FDI) over the past 15 years has been the European Union (EU) at 25.3%, yet the EU's investment in India in the power, telecommunications and transport sectors accounts for just 0.3% of its global investments.

Because investment is needed to compensate for India's current account deficit and domestic growth, attracting foreign capital is essential. Moreover, foreign investment often accompanies technical expertise and additional economic benefits, which are critical to India's rapidly modernising economy and growing population base. Clearly, maintaining the impetus behind the reform process is an essential goal.

Given the increases in population and economic growth, there are two main challenges for India's gas sector. First, it needs to develop a fair pricing scheme that emphasises transparency and full cost recovery. In doing so, it needs to address the needs of the poor through mechanisms that do not distort market determined prices of energy. By moving away from explicit and crudely applied subsidies, India can provide a hospitable climate for investment. Separating economic efficiency from policy objectives should be the goal. Second, it needs to secure long term, stable sources of gas supply.

Fuel for the Fire

Currently, government mandated pricing in India distorts market mechanisms and limits supply. Domestically produced gas is sold to the Gas Authority of India (GAIL) which transports 90% of consumed gas and sells to end users at rates designated by the government. The Indian power and fertiliser sectors strongly benefit, absorbing 75% of India's gas supply. Given the political priority of these groups, there exists a substantial domestic market that receives artificially suppressed prices. This mismatch between externally priced imported fuel and feedstock and domestically subsidised production hampers investment.

The result is power shortages because upstream producers cannot pass along the full cost to the end user. The situation has also led to an increase in demand for additional energy sources, such as LNG, that can bridge the shortfall in domestic sourcing. While India had been hesitant to actively engage in the spot market, this has recently changed. In 2006, for example, India bought 12 spot cargoes of LNG at market price, signalling a shift in procurement. However, problems remain. The government is under consistent pressure to maintain subsidies, even though exploration divisions owned by the government, such as the ONGC, may have to forgo new investment and expansion opportunities as a result.

New Delhi faces two, sometimes opposing forces. On the one hand, special interest groups and the poor have a vested interest in maintaining access to cheap gas. However, new power demands mean that approximately

70,000 MW of power must be brought online in the next few years, requiring a level of investment that far exceeds state resources. Without foreign investment and a capable regulatory system, there simply will not be enough power to meet demand. However, explaining why higher prices might be necessary and, at the same time, avoiding the seemingly inevitable political fallout, will not be easy.

Increasingly, long term energy needs have pushed market pricing to the fore. They have also spurred interest in securing sources of LNG, and current construction of regasification terminals continue apace. New proposed terminals, such as Kochi and Kakinada, for example, are expected to bring 2.5m tons per year of additional capacity in the next couple of years. However, regasification depends on the availability of LNG and these resources are far from guaranteed.

Foreign Entanglements

A further stumbling block concerns access to supply. Increasingly, Indian state-owned energy companies are vying with China for the same resources. Yet, because of government interference and domestic constraints over pricing, they have often lost out on important new contracts. ONGC was recently outbid for the Akpo oil field in Nigeria by China National Offshore Oil Corporation (CNOOC); the Chinese offer of $2.2bn captured the hotly contested prize. This same competition is repeated on a regular basis, with Indian and Chinese oil and gas companies currently eyeing West African oil and gas assets held by Devon Energy. From the Middle East, to Africa, to Southeast Asia, India is scouring the globe in an attempt to shore up new upstream resources. This has led it down the road to some problematic regimes, including possible long term contracts with, for example, Myanmar.

The Chinese, who share a contiguous border with Myanmar, have been quick to secure new agreements with the military junta, leaving India the difficult task of negotiating with Bangladesh over transit rights. In January, PetroChina signed a memorandum of understanding with Myanmar for 6.5trn cf^3 over thirty years. Recent sales agreements between Myanmar and China, sourced from gas fields in which ONGC and GAIL held minority interests, have also sidelined New Delhi.

While negotiations over direct transit pipelines in Bangladesh for Myanmar gas have faltered, Delhi is exploring other options that include circumventing Bangladesh altogether, such as building direct links to West Bengal in Eastern India, or using compressed natural gas (CNG) for short range delivery.

With impediments to the east, New Delhi continues to pursue the long term possibility of an Iran-Pakistan-India pipeline (IPI), despite the protests from Washington. However, the firing of the Iranian oil minister Kazem Vaziri-Hamaneh, who allegedly supported discounted gas for India, has dealt a severe blow to these prospects. Recent talks between India and Pakistan are frayed, leaving only dim prospects for the IPI pipeline.

However, the pipeline cannot be completely dismissed. With Iran holding the second largest gas reserves in the world, India must balance its delicate diplomatic relationships with the US with its pressing need for energy security. Eager to continue ratcheting up the pressure on Tehran, Washington has used the threat of economic retaliation to hobble, delay and frustrate investment in the Islamic Republic. With Iran blacklisted over its nuclear aspirations, Washington has stood firm in its objections. So far, however, no companies have been prosecuted under the Iran Libya Sanctions Act, even though technical violations top $100bn since 1999. Further, given European desire for new sources of gas and their participation in UN negotiations, the game of cat and mouse will likely continue. India will need to balance its desire for energy security with regional politics, and with the potential political opprobrium that an untoward relationship with Iran might bring about with the US.

Forging a New Path

Clearly, the Indian market for upstream and downstream gas has come a long way since the demise of the Dabhol power plant. The failure of Dabhol and India's pressing power needs have led to regulatory reform and prompted a discussion of how best to match power sources with uses. Yet while new investment seeks to capitalise on strong demand and heady growth levels, challenges remain. Indian regulators and politicians will need to continue to liberalise prices and set National Oil and Gas Companies free to secure upstream resources. Moreover, given the geopolitical complications of the area, India will need to overcome regional mistrust if it wishes to secure pipelines and lock in supply. Otherwise, developing countries such as China risk usurping regional power supplies.

India must first unshackle itself from historical policy constraints if it wishes to foster outside investment for new projects. Attracting greater investment is no easy task but an essential component of India's new strategy on energy security, one that increasingly recognises the essential role of global markets in energy supply. While new investments will beget more opportunities, in the competitive arena of global gas and energy sourcing, reform cannot come too soon.