

The IPP Investment Experience in Malaysia

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Working Paper #46

August 17, 2005

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About The Experience of Independent Power Projects in Developing Countries Study

Private investment in electricity generation (so called "independent power producers" or IPPs) in developing countries grew dramatically during the 1990s, only to decline equally dramatically in the wake of the Asian financial crisis and other troubles in the late 1990s. The Program on Energy and Sustainable Development at Stanford University is undertaking a detailed review of the IPP experience in developing countries. The study has sought to identify the principal factors that explain the wide variation in outcomes for IPP investors and hosts. It also aims to identify lessons for the next wave in private investment in electricity generation.

PESD's work has focused directly on the experiences with IPPs in 10 developing and reforming countries (Argentina, Brazil, China, India, Malaysia, Mexico, the Philippines, Poland, Thailand and Turkey). PESD has also helped to establish a complementary study at the Management Program in Infrastructure Reform & Regulation at the University of Cape Town ("IIRR"), which is employing the same methodology in a detailed study of IPPs in three African countries (Egypt, Kenya and Tanzania).

About the Author

Jeff Rector is a Research Fellow with the Program on Energy and Sustainable Development and in his final year of law school at Stanford Law School. Before coming to law school, Mr. Rector completed his Masters of Pacific International Affairs at the Graduate School of International Relations and Pacific Studies at the University of California, San Diego and spent several years working for an engineering and construction company in Tokyo, Japan.

Disclaimer

This paper was written by a researcher (or researchers) who participated in the PESD study *The Experience of Independent Power Investment in Developing Countries*. Where feasible, this paper has been reviewed prior to release. However, the research and the views expressed within are those of the individual researcher(s), and do not necessarily represent the views of Stanford University.

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I. INTRODUCTION

This paper is part of the wider Program on Energy and Sustainable Development study on the historical experience of Independent Power Producers (IPPs) in countries that are in the midst of transforming the industrial organization of their electric power sectors. The study seeks to explain the patterns of investment in IPPs and the variation in IPP experiences. The aim is not only to assess the historical record accurately but also to chart possible future paths for the IPP mode of power sector investment. This paper follows the research methods and guidelines laid out in the project's research protocol.¹

Malaysia serves as a useful example of a highly self-contained model of IPP program implementation: the composition of project investors was almost exclusively domestic; debt financing for the projects came exclusively from domestic sources and was based in local currency; and fuel, the largest component of total project cost in the gas-fired thermal plants that Malaysian IPPs employed,² came solely from domestic sources. These features made Malaysia's IPP sector less vulnerable to the shock of the Asian financial crisis than its neighbors, but by no means immune. Malaysia's partially privatized but state controlled off-taker had high levels of foreign currency debt for which repayment obligations became enormously burdensome as a result of the currency devaluation that Malaysia experienced during the crisis. Additionally, the Asian financial crisis led to a contraction in the Malaysian economy, which resulted in a slow-down of electricity demand growth and exacerbated an overcapacity problem that was already causing serious financial strain on the government off-taker. The outcome of subsequent negotiations between the off-taker and the IPPs during the Asian financial crisis and its aftermath raise interesting questions regarding the sources of reliability of state-entity commitments made to private power investors.

II. THE INVESTMENT CONTEXT

A. Overview

Malaysia, with a population 23,522,482,³ is comprised of peninsular Malaysia, south of Thailand, where the capital, Kuala Lumpur, and the large majority of economic activity is located, and eastern Malaysia on the island of Borneo, shared with Brunei and Indonesia. It is a middle-income country,⁴ having experienced solid and steady export led growth over the past thirty years. The most significant component of this growth was in the electronics sector, which

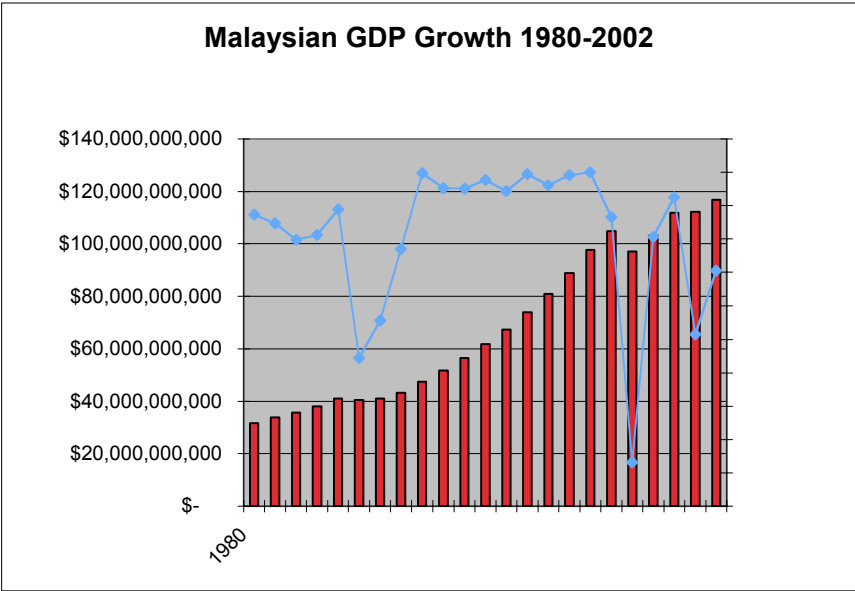
¹ Victor, et al (2004). "The Experience with Independent Power Projects in Developing Countries: Introduction and Case Study Methods," PESD Working Paper #23, available at <http://pesd.stanford.edu/publications/workingpapers.html>.

² All of the large IPPs in the first phase of the Malaysian program were gas-fired.

³ CIA Factbook, (July 2004 estimate)

⁴ CIA Factbook, GDP per capita: purchasing power parity - \$9,000 (2003 est.)

benefited from high levels of foreign investment in manufacturing facilities. Figure 1 below presents historical growth rates in the Malaysia economy from 1980 to 2002.⁵



B. Political Structure and Environment

Malaysia is a constitutional monarchy. The executive head of government is the Prime Minister, who is the leader of the party obtaining a plurality of seats in House of Representatives (the more powerful body in a bicameral legislature) and formally appointed by the King. During the period of review (1990-2003), the government was controlled by the dominating and sometimes authoritarian leadership of Mahathir Mohamad, who held the Prime Ministership from 1981 until 2003. Mahathir was the leader of the United Malays National Organisation (UMNO), which controlled a broad-based multiparty coalition that has controlled Malaysian politics for three decades. The strength of the coalition, or the lack of credible opposition, has provided for a stable political system. Despite fears that the vast accumulation of power held by Mahathir would result in a destabilizing power struggle when he stepped down, the system successfully handled the transfer of power from Mahathir to Abdullah Badawi, who also succeeded Mahathir as leader of UMNO, in 2003.

C. Rule of Law

From the perspective of an IPP investor, the reliability of the supply contract with the state-controlled off-taker is of primary importance, as is the existence of a fair and predictable regulatory regime. Judicial branch independence from the political branches of government is key for these important features of the investment environment. Relative to many of its neighbors in the region, Malaysia has a reputation for a highly competent judiciary. But in 1988, any appearance of judicial independence was wiped away when Prime Minister Mahathir orchestrated the impeachment and removal of the Chief Justice in response to a political dispute

⁵ Data from the World Bank, World Development Indicators 2004

between the prime minister and the courts. When four other judges resisted hearing the impeachment trial, they too were dismissed. This was a major blow to separation of powers and rule of law from which Malaysia has not yet recovered. But there is more to the rule of law than whether the judiciary functions as an independent check on government. For example, even without political independence, courts can be reliable independent arbitrators of the law in private commercial matters that have low political importance – and most investors would value this. For the purposes of this study, we will observe simply that the Malaysian judiciary provided a very weak check on the decisions of the political branches of government.⁶

III. THE ELECTRICITY SECTOR

A. Ownership and Regulatory Structure

Tenaga Nasional Berhad (Tenaga) is the dominant electric utility in Malaysia. Tenaga owns roughly sixty percent of all peninsular Malaysia's generation assets⁷ (and roughly fifty percent of all Malaysian generation) through its generation subsidiaries and holds a monopoly over transmission and distribution in all of Peninsular Malaysia.⁸ In eastern Malaysia, two utilities of a much smaller size provide power to the provinces of Sabah (Sabah Electricity Sdn. Bhd. (SESB) and Sarawak (Sarawak Electricity Supply Corp. (SESCo)). The IPP sector owns forty percent of the nation's generation capacity.⁹ Completing the mix is a dedicated power producer (Northern Utility Resources) and co-generation (captive) plants. See Appendix B for a list showing all large-scale IPPs as of 2004.

All aspects of policy in the energy sector are overseen by the Prime Minister's Economic Planning Unit (EPU) and the Implementation and Co-ordination Unit (ICU). The EPU is in control of all privatization efforts, has jurisdiction over the IPPs, and was the government authority that awarded IPP concessions.¹⁰

The Energy Commission (EC), a division of the Ministry of Energy, Water, and Communications, is the principal electricity sector regulator. It is responsible for implementing the sector's governing statute, the Electricity Supply Act 1990 (amended 2001), the setting of tariffs, and advising the government on power policies. The EC's Committee for Planning, Implementation and for the Supply of Electricity and Tariffs (CPISET) meets three times yearly

⁶ Malaysian courts were never tested in Malaysia's IPP experience but the IPPs publicly appealed to the "sanctity of contract" when the state off-taker, Tenaga, was insisting on an unscheduled renegotiation of the power purchase agreements. A more thorough investigation into the rule of law in Malaysia would be useful to understand all of the strategies undertaken by the IPP developers, such as, for example, with whom did developers decide to partner and from whom did developers decide to procure subcontracting services.

⁷ KTKM (Ministry of Energy, Communications, and Multimedia) Energy Sector Information Book, *available at* <http://www.ktkm.gov.my/images/EnergyKTKM.pdf>.

⁸ However, there is at least one captive power project where transmission is not controlled by Tenaga.

⁹ Electricity Commission website, <http://www.st.gov.my/Overview.php> ("Out of total generation capacity of 15,121MW owned by the IPP and the three utilities in 2002, the IPPs contributed 6,031MW (40%).")

¹⁰ See KTKM (Ministry of Energy, Communications, and Multimedia) Energy Sector Information Book, *available at* <http://www.ktkm.gov.my/images/EnergyKTKM.pdf>.

to review issues like tariff rates, service standards, supply plans and other issues related to the sector.¹¹

B. Electricity Consumption and Fuel Mix.

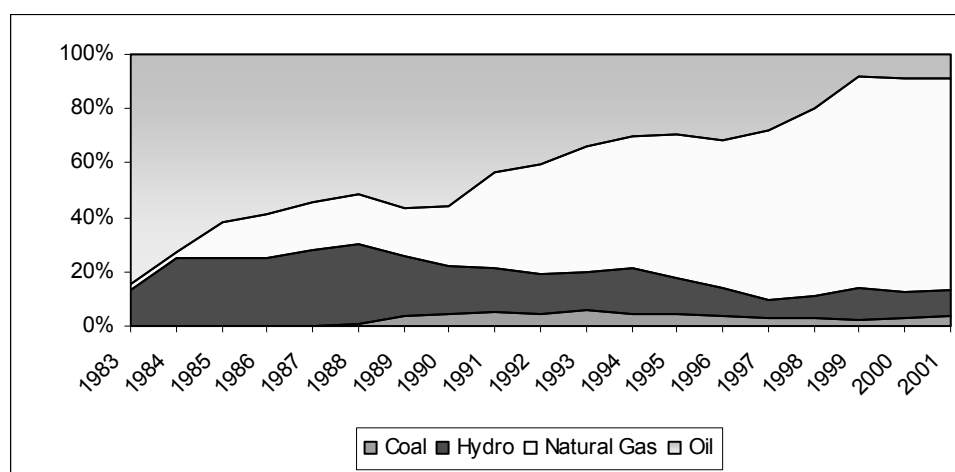
Malaysia has substantial domestic fuel reserves, and is an exporter of oil and natural gas. Malaysia has the second-largest natural gas reserves (75 Tcf) in Asia.¹² It is also one of the oldest oil producers in the region, although reserves are set to decline rapidly. Energy accounts for 8-10% of the country's export revenues, fluctuating according to prevailing oil prices.

TABLE 1: MALAYSIA - SELECTED PRIMARY FUEL STATISTICS¹³

	1995	2000	2001	2002	2003e	2004f
NATURAL GAS						
Reserves (Tcf)	..	..	..	75	75	75
Production (Bcf)	1019.9	1498.1	1657.7	1712.8	1790	1805
Consumption (Bcf)	484.9	721.8	910.1	990.2	1020	1060
COAL						
Reserves (Mmst)	..	..	..	4.4	4.4	4.4
Production (Mmst)	0.1	0.4	0.5	0.8	1	1
Consumption (Mmst)	2.7	3.6	4.6	6.9	7	7

For its electricity generation, Malaysia predominantly uses natural gas, supported by hydropower, coal, and oil, in declining significance. Malaysia's coal fired thermal plants have only recently been installed as part of a fuel diversification strategy. Figure 2, below, illustrates the evolution of the fuel base in the Malaysian electricity sector over time.¹⁴

FIGURE 2: ELECTRICITY GENERATION FUEL MIX, 1983-2001 (% OF TOTAL)



Source: World Bank, World Development Indicators (2003)

¹¹ Malaysian Business Feb. 1, 2004, page 23

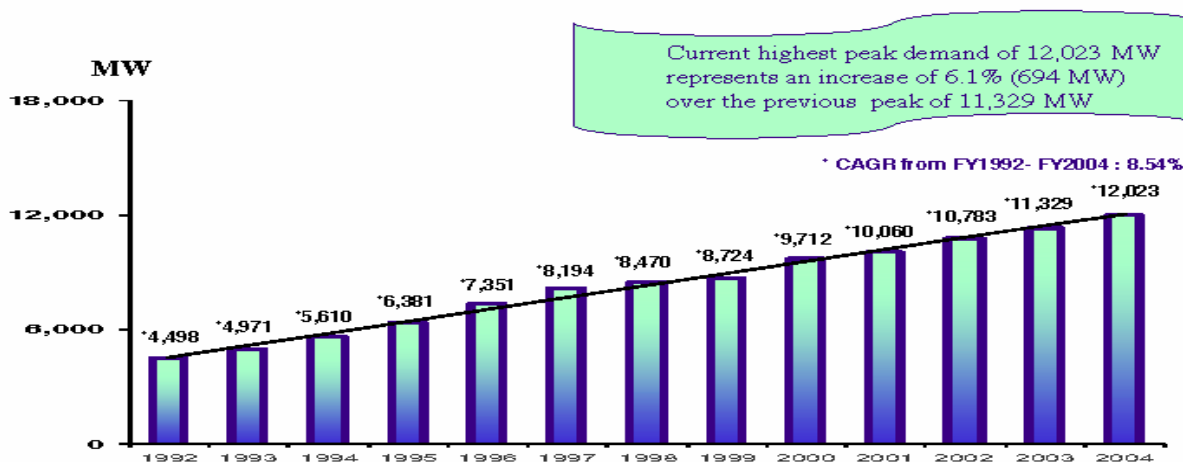
¹² World Markets Research Center (WMRC) Country Report: Malaysia (Energy) December 2004

¹³ Source: WMRC Country Report: Malaysia (Energy) December 2004

¹⁴ Source: IEA

In 2004, the industrial sector consumed fifty-one percent of the electricity supplied by the three utilities; the commercial sector consumed twenty-nine percent; and the residential sector consumed nineteen percent.¹⁵ According to the national utility, peak demand has grown steadily from 1992 at an average annual rate of 8.5 percent per year. (See figure 3, below.)¹⁶

FIGURE 3: GROWTH OF ELECTRICITY DEMAND, 1992-2004



IV. PRIVATIZATION AND THE IPP PROGRAM

A. Privatization of the National Utility

Malaysia was one of the earlier Asian countries to proceed with a privatization program. Pursuant to the Electricity Supply Act 1990, which also set out a framework for the introduction of IPPs,¹⁷ the government power authority, National Electricity Board (NEB), was corporatized into Tenaga. Shortly thereafter in 1992, the government privatized Tenaga by selling roughly 22 percent of the company’s shares onto the Kuala Lumpur Stock Exchange.¹⁸ Since 1992, the government has sold more of its position in Tenaga but continues today to be a majority and controlling shareholder.¹⁹ Tenaga is one of the two largest capitalized stocks on the KLSE.²⁰

The principal stated reasons for the flotation were to enable the utility to broaden its business base, to reduce government involvement in what ought to be day-to-day commercial

¹⁵ Malaysia Electricity Commission, “Statistics of Electricity Supply Industry in Malaysia Year 2004 Edition”

¹⁶ Tenaga Nasional Berhad, Annual report to investors 2004

¹⁷ See Louise Bowman, “Malaysia: The power and the glory,” *Project & Trade Finance*, Jun 1993, p. 38

¹⁸ The privatization of state owned enterprises was a notorious way for the Malaysian political leadership to distribute wealth to friends and allies of the government. Insiders would be given allocations of stock well below the issuing or aftermarket price, providing an opportunity for quick profits. The privatization of Tenaga was no different. See Thomas B. Smith, “Privatising Electric Power in Malaysia and Thailand: Politics and Infrastructure Development Policy,” *Public Administration & Development*, Aug 2003; 23, p. 276

¹⁹ The largest shareholder in Tenaga is the state holding entity, Khazanah Nasional Bhd, which owns 36% of the utility. The second largest stakeholder is Bank Negara Malaysia with 11.35%. The state energy firm Petroliam Nasional Bhd (Petronas) acquired a 9.6% interest from the Ministry of Finance in 2004, while the Ministry of Finance retains a 7.4% stake. *POWERASIA*, 2/19/04, p. 14

²⁰ Telekom Malaysia has the largest capitalization on the KLSE.

business activities and to lighten the burden on the treasury that would come from the need to double capacity from 6,645 MW in 1992 to an estimated 12,000 MW by 2000 and to 30,000 MW by 2020.²¹ As a corporatized and partially privatized entity, Tenaga was more subject to hard budgetary constraints than the ordinary Malaysian government actor and possibly more likely to be constrained by the legal system, for example in the enforcement of contracts, to the degree a difference existed between private and government actors in their treatment by the courts.

B. Impetus for the IPP Program

Malaysia's economic expansion created a surging need for power. Electricity supply was understood as a key bottleneck for continued economic growth and industrialization generally, but also as essential infrastructure to ensure continued FDI into Malaysia. In the early 1990s, the economy was one of the most dynamic in Asia; and many analysts believed electricity shortages were limiting growth. It was perceived that generation capacity was not being adequately met by Tenaga alone, and Prime Minister Mahathir indicated support for the introduction of private suppliers.²²

A massive blackout in 1992 shut down much of the country for up to 48 hours, prompting a fierce public outcry and threats of lawsuits against Tenaga. An inquiry cleared Tenaga of negligence but the incident severely damaged its reputation.²³ In response to the blackout, Kuala Lumpur dismantled Tenaga's monopoly on generation and aggressively pushed forward the IPP program to restore an adequate safety margin of capacity and to ensure that the country could meet its anticipated future power needs. It seems that doubts over the managerial capacity of Tenaga were more important than a perceived lack of internal financing capabilities in the decision to aggressively move forward with the IPP program.²⁴

C. Launching the IPP Program / The Investors

The IPP licenses were highly sought after: when the IPP policy was first announced, more than 150 applications flooded in to the Economic Planning Unit.²⁵ Politically well-connected groups were formed to bid for IPP licenses and investors in the first five winning IPPs included some of the biggest corporate names in Malaysia: gaming company Genting, media and

²¹ *POWERASIA*, 6/1/92

²² *POWERASIA*, 1/27/92 ("The Prime Minister, Mahathir Mohamad, added his political weight to the issue with a recent remark that outside companies ought to be allowed into the electricity market "if their supplies were competitive." It was his first major public comment on the matter. The remarks lend credence to suggestions that private generators will be allowed into the country to set up stations and sell electricity to Tenaga.")

²³ See *Asiaweek*, July 12 (1996).

²⁴ Unlike most other national utilities in our country sample, Tenaga may have been able to finance additional capacity given the deep bond market and their blue chip reputation. Many people blamed the blackout of 1992 and later in 1996 on a poor planning resulting in a power shortage and faulty management of the grid—not because of an "act of God." After the 1996 blackout, the Chairman of Tenaga was fired for saying that the company's commonly used moniker, TNB, stood for "total national blackout," not Tenaga Nasional Berhad.

²⁵ "The Size of the Generation Gap," *Project and Trade Finance*, Jan 1994, Issue 129 p. 38. But according to the *Far Eastern Economic Review*, more than 80 applications were filed. S. Jayasankaran "High Tension," *Far Eastern Economic Review*, September 1, 1994.

telecoms group Malaysian Resources, giant multinational Sime Darby and construction firm YTL Corp,²⁶ the state-owned investment company, Permodalan Nasional, and “tycoon” Ananda Krishnan.²⁷

It seems that experience in the power sector was not a necessary qualification for securing a concession, while the strength of connections to the government was of central importance. This may have made it difficult to get lending from some international financial institutions. “What has raised concern among banks is the companies getting the licences,” reported a Singapore-based international banker. “They are run by well-connected individuals who are after lucrative contracts.”²⁸ “The good news is the government is getting the IPP program going,” said one analyst. “The bad news is that politics and connections are playing too big a role in the way the whole process is being carried out.”²⁹

Tenaga became a twenty percent or ten percent minority shareholder in all but one of the first IPPs and was a shareholder from the project inception for later IPP projects in order to hedge its bets and get into what was believed to be a very profitable sector in the business.³⁰

D. Common Features of the Negotiation Process and Deal Structure

After being awarded concessions, these IPPs signed long-term power supply contracts with Tenaga.³¹ While the contracts were ostensibly ordinary private contracts, they were completed with the mediation, guidance and imprimatur of the government. According to separate interviews³² with a Tenaga official and an IPP owner, the PPA negotiations and some of the financing conversations were three way negotiations including the IPP, Tenaga, and the government. The private investor commented that on occasion, when there was a deadlock between Tenaga and the IPP over the allocation of a particular risk, the discussion would go offline to a political level. The parties would come back to the negotiation table and the conflict had already been resolved as if it never existed. The government’s strong presence during the contracting phase was to be a factor when renegotiation discussions arose.

As is commonly seen in IPP programs, the contracts had take or pay PPAs or fixed capacity charges such that Tenaga would have payment obligations regardless of whether it

²⁶ YTL Power International is headed by Datuk Francis Yeoh, who is reputedly a close friend of Mahathir. Thomas B. Smith, “Privatising Electric Power in Malaysia and Thailand: Politics and Infrastructure Development Policy,” *Public Administration & Development*, Aug 2003; 23, p. 278.

²⁷ S. Jayasankaran “High Tension,” *Far Eastern Economic Review*, September 1, 1994.

²⁸ “The Size of the Generation Gap,” *Project and Trade Finance*, Jan 1994, Issue 129, at 38.

²⁹ 6/7/93 POWERASIA 11.

³⁰ That Tenaga’s entrance in the IPP business directly conflicted with the primary purpose of privatization did not keep Tenaga from involving itself in IPP ventures. In late 1998, after currency losses caused it to post its worst losses ever, Tenaga announced its plan to begin getting out of the IPP business, and the generation business altogether. Bloomberg Dec 2, 1998 “Tenaga to Exit Power Generation Amid Competition” Tenaga has since discontinued its plant divestment and is still the largest owner of generating capacity in Malaysia through its generation subsidiaries.

³¹ In a telephone interview conducted by the author, a consultant to one private investor indicated that at least some of the financial terms of the deal were agreed upon with the government as a condition of being awarded the concession.

³² Conducted by the author in March 2005.

actually needed the power. The first IPPs were all gas fueled, sourced from domestic natural gas resources and supplied solely by Petronas, the state owned oil and gas monopoly company. Fuel cost risk was borne by Tenaga.³³

The tariffs for the first wave of investment reportedly ranged from 13.7 to 15.5 sen per kWh,³⁴ which was significantly higher than cost of production by Tenaga owned facilities.³⁵ This is not unusual but the gap might have been larger than it needed to be. The rates were fixed (without indexing to inflation or fuel prices) over 21 years. Because the tariff was fixed in nominal terms over time, the inflation adjusted price of power is higher in the first years of the contract, allowing for profits to be returned to the investors early in the projects' life cycle.³⁶ It is said that the five consortiums in the first wave of investment were guaranteed returns of twenty percent³⁷ and that their actual returns were even higher. The contract rates for the second wave of IPPs, which began in about 2001 were significantly lower than for the first wave.³⁸

E. Investment Controls / Foreign Participation

There were at least two official controls that inhibited the ability of foreigners to participate as investors in IPP projects. First, the National Development Policy (NDP, 1991) continued the policy of the New Economic Policy (NEP, 1971), which required that all Malaysia based businesses have 30% bumiputra (ethnic Malay and other indigenous populations) ownership.

Secondly, as a general rule during the covered period, foreign investors were prohibited from taking more than a 30 percent stake in several strategic sectors, including the electricity sector.³⁹ The foreign investor restrictions were not implemented via a transparent statute as was the case in Thailand with its Foreign Business Act; the rules were a matter of regulatory policy

³³ In later IPPs fuel cost risk was partially shifted to the IPPs. Further research should investigate the variation between projects in terms of participants and contract terms, for example, differences in pricing, risk allocation, guarantees, multilateral participation, who the foreign participants were, etc. The first IPP (YTL Power) had a significantly different PPA than the next four IPPs that participated in the first wave of investment.

³⁴ "Power: Is there a better formula?" *Malaysian Business*, June 16 1997, p. 4.

³⁵ See report on Tenaga Nasional, *International Country Risk Guide – Asia and the Pacific*, Apr 1, 1997 ("Tenaga is under contract to buy a fixed proportion of [IPP] power at fixed prices, which in some cases are nearly double Tenaga's own generation costs."); "Turning the Spotlight on a Level Playing Field" *New Straits Times Business Times*, July 5, 2001 ("The first PPA was at a price of 15.5 sen per kilowatt-hour, which is significantly higher than Tenaga's own production cost. Even Tenaga's former Chairman Tan Sri Ani Arope acknowledged the fact and said: 'we will have to bite the bullet and live with it.'").

³⁶ Also known as "frontloading." It was reported that the Port Dickson plant would require seven to eight years to break even. Mustapha Kamil, "PD Power Plant – Plant Needs 7 – 8 Years to Break Even," *Business Times*, Apr. 5, 1994. The declining inflation-adjusted price of power affected Tenaga's interest in renegotiation once the horses were already let out of the barn. A Tenaga official indicated to the author that by 2001 Tenaga was more comfortable with the rates of the older IPPs because in a few years they would start to look inexpensive.

³⁷ S. Jayasankaran, "Kuala Lumpur: Price of Power," *Far E. Econ. Rev.*, 1/30/97.

³⁸ See discussion below in "Post Crisis Developments" beginning on page 15.

³⁹ See "Malaysia: Investment Regulations," *EIU ViewsWire*, July 8, 2004; "25 Restricted Areas," *Corporate Location*, Mar/Apr 1997; also see Economist Intelligence Unit, "Country Report: Malaysia, Brunei 4Q 1998," at page 29. None of these reports directly mentions the electricity sector but 30 percent is the most common maximum permitted level of foreign investment in "strategic sectors." Reuters News reported in "Malaysia May Lift Cap on Foreign Power Ownership" Feb. 28, 2000 that the foreign ownership limitations in power generation was 30%.

that were subject to flexible application.⁴⁰ Malaysia's government ministries changed the rules as needed to suit changing economic conditions. For example, investment restrictions in the manufacturing sector were lifted in the period immediately after the Asian financial crisis. In the electric power sector, in May of 1998, the Minister for Energy, Post, and Telecommunications said, "We have no definite level of foreign shareholding in so far as the power industry is concerned."⁴¹ As an example of increased willingness to open up the sector to foreign investment, in the summer of 1999, ABB was positioned so that it "may get a rare concession from the Malaysian government to have a temporary 60 percent stake in a power plant."⁴²

We understand that there was only one project that had foreign investor participation from the development stages.⁴³ ABB Equity Ventures was an initial investor with a 25% stake in the Segari Lemut project led by Malakoff. Within six months after the close of financing, and before the project had completed, ABB Equity Ventures was strongly encouraged to sell its stake to Tenaga, which it did, at a profit. ABB's role as the EPC contractor for the project was unchanged. But during the during the Asian financial crisis, there was a notable if relatively small level of foreign ownership compared to other countries that was acquired through stock purchases of publicly listed IPPs in 1997 and 1998. Among them, in June, 1998, National Power of Britain bought 15% of Malakoff Berhad, Malaysia's largest owner of IPPs.⁴⁴

F. Domestic Debt Financing of the IPP Sector

As a general policy matter during the 1990s, the government placed restrictions on foreign borrowing.⁴⁵ This may or may not have affected the developers. Foreign banks may have been invited to participate in the lending, but none eventually did.⁴⁶ At least one foreign observer was of the opinion that the concessions may have posed difficulties for global standard commercial financing.⁴⁷

⁴⁰ See International Institute for Sustainable Development, "Investment Regime: Malaysia," *May 28, 2004*, available at: www.iisd.org/pdf/2004/investment_country_report_malaysia.pdf.

⁴¹ "Malaysia Reaffirms Policy to Allow Foreign Investment in Private Plants," *Global Power Report*, May 15, 1998

⁴² *Asian Wall Street Journal*, 6/22, p 3.

⁴³ *But see* The World Bank Group ■ Finance, Private Sector, and Infrastructure, "The Impact of IPPs in Developing Countries—Out of the Crisis and into the Future," Note no. 162, Dec. 1998. Figure 3 in this document suggests that, as of 1997, roughly 15% of all IPP financing came from private foreign sources. This is higher than our research suggests. Further research should reconcile this possible inconsistency.

⁴⁴ British Gas at one point owned equity in the Genting Sanyen plant, but we have not yet confirmed whether it was an initial investor or whether it bought in after development. British Gas reportedly held 20% of a 720 MW unit and Belgium's Tractebel reportedly owned 20% of a 350 MW project. "Malaysia Reaffirms Policy to Allow Foreign Investment in Private Plants," *Global Power Report*, May 15, 1998. Further research should investigate these investors' experiences.

⁴⁵ Malaysian borrowers with foreign currency receivables were allowed to tap offshore markets, but needed central bank approval for any amount over RM\$1 million. See Nick Parsons, "Offshore borrowings still off limits" *Euromoney*, June 1994, p. 54.

⁴⁶ However, the World Bank's PPI database indicates that the Asian Development Bank lent US\$203 million to the YTL Power project (a search of ADB website found no record of this loan). Further research should confirm whether the bank indeed extended credit to Malaysia's first IPP.

⁴⁷ "The Size of the Generation Gap," *Project and Trade Finance*, Jan 1994, Issue 129 page 38. ("None of the concessions has the usual covenants that lenders should see," said someone close to the deals.)

However, foreign bank lending was not needed. Malaysia was an exception in the region in that it relied almost entirely on domestic capital markets, rather than local or international bank financing, to fund its independent power projects.⁴⁸ The first five IPPs raised over RM\$9 billion, entirely from domestic sources.⁴⁹ Half was pledged by the Employees Provident Fund (EPF), Malaysia's national savings plan for private-sector workers and its largest pension fund.⁵⁰ EPF was a very important source of funds for the IPP program, in some cases it was the exclusive purchaser of project bonds.⁵¹

G. From Shortage to Glut

Malaysia moved forward with its IPP program with impressive speed. While the existing capacity was roughly 6,000 Megawatts, Malaysia commissioned five projects totaling 4,157 MW of new capacity in the span of eight months from April to December 1993. The IPPs were given incentives to finish their projects quickly, to which they responded.⁵² The IPPs came online quickly⁵³ and Malaysia was soon out of its power shortage. Unfortunately, the new capacity grossly overshot demand growth. By January of 1997, several months before the Asian financial crisis struck Malaysia, peninsular Malaysia had almost fifty percent surplus capacity.⁵⁴ Much of the electricity had no real market, which prompted Prime Minister Mahathir to urge consumers to use more electricity.⁵⁵ At this time IPPs accounted for roughly thirty-five percent of all installed generation assets, but supplied more than this percentage because Tenaga-owned facilities were turned off in order to utilize IPP power given that Tenaga was obliged to purchase.⁵⁶

The sudden overcapacity has been attributed to poor government planning. Government officials privately admitted they gave out too many licenses too fast.⁵⁷ Another contributing factor for the overcapacity was that in addition to new generation commissioned to the IPPs, Tenaga also built new capacity into existing facilities. Tenaga was reportedly concerned that several of the IPPs would be late in getting online and therefore continued to install additional

⁴⁸ See Natasha Calvert, "Risky Business," *Project Finance*, June 2002, p. 40-42.

⁴⁹ YTL Power's bond obligations were fixed at 10 percent interest with repayment beginning in 1999. YTL Power International Berhad, Annual Report 04, at p. 94.

⁵⁰ S. Jayasankaran, "Kuala Lumpur: Price of Power," *Far E. Econ. Rev.*, 1/30/97.

⁵¹ See Nick Parsons, "Offshore borrowings still off limits," *Euromoney*, June 1994, p. 54

⁵² See S. Jayasankaran, "Penny Foolish: Malaysia reconsiders its generous energy policy," *Far E. Econ. Rev.*, 5/25/95 p. 61 ("The rich pickings compelled the independents to move fast. YTL, for example, began selling power to Tenaga in October, more than six months ahead of schedule. Unfortunately, the utility doesn't need it. But under the terms of its agreement with YTL, it has to buy it anyway.").

⁵³ The first project went online in October 1994.

⁵⁴ In August 1997, immediately before the impact of the Asian financial crisis hit, Energy, Telecommunications and Posts Minister Datuk Leo Moggie announced that the then current national demand capacity was 12,000 MW, while peak demand was 8,200 MW. "Agency Says Power Production Enough to Meet Demand Up to Year 2000" *Bernama Malaysian National News Agency*, Aug. 22, 1997; See report on Tenaga Nasional, *International Country Risk Guide – Asia and the Pacific*, Apr 1, 1997 ("Malaysia already has an electricity reserve of about 50%").

⁵⁵ Thomas B. Smith, "Privatising Electric Power in Malaysia and Thailand: Politics and Infrastructure Development Policy," *Public Administration & Development*, Aug 2003; 23, p. 277.

⁵⁶ This was probably a better outcome from an environmental perspective because the new plants were cleaner than the old ones.

⁵⁷ S. Jayasankaran, "Kuala Lumpur: Price of Power," *Far E. Econ. Rev.*, 1/30/97.

gas turbines throughout the country.⁵⁸ Compounding these problems on the government side was the fact that the favorable terms in the contracts offered by Tenaga drove strong investor interest, while limiting the incentives to conduct due diligence regarding the actual supply-demand situation in the country. It should be noted that optimally matching capacity development to accurate demand forecasts has proven to be challenging in emerging economies and that the costs of inadequate capacity are far higher than the costs of overcapacity levels like those experienced by Malaysia. The provision of adequate power generation was a high-priority cornerstone of the Malaysian government's policy to create a favorable infrastructure environment in order to attract foreign manufacturing investment.

H. Pre-Financial Crisis Renegotiation Attempts

Because of its PPA obligations and generation overcapacity, Tenaga was under tremendous financial pressure, well before the onset of the Asian Financial Crisis. In 1994, analysts warned that the government was handing out too many IPP licenses, and that this would ultimately hurt Tenaga.⁵⁹ In 1995, Tenaga's share price was hit hard by investor fears that the utility's earnings would drop as a result of the large and growing payouts to the IPPs.⁶⁰ Tenaga was given approval to raise the rates periodically in order to pay for its increased costs, but from Tenaga's perspective these rate increases did not adequately meet the gap.

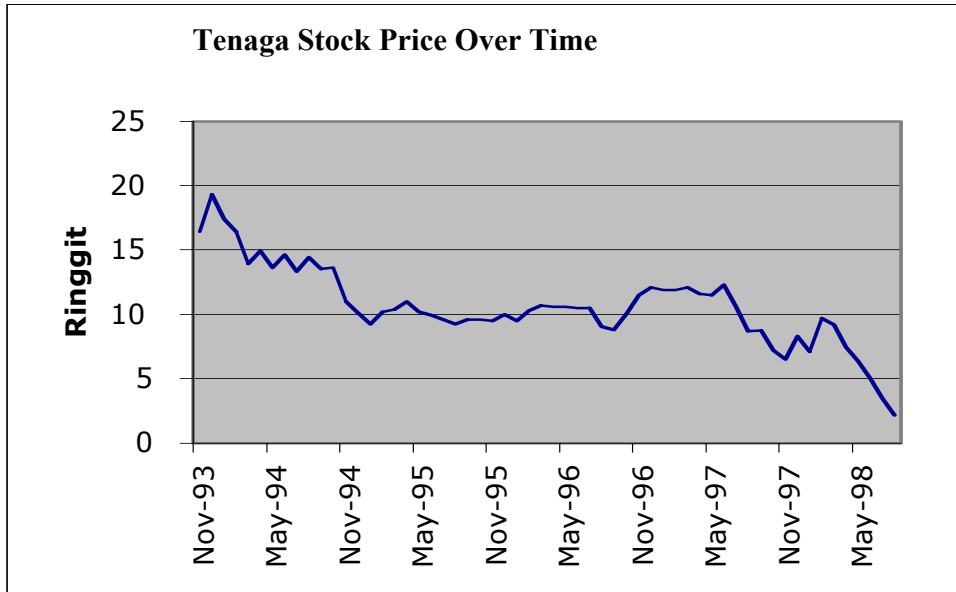
The chart below tracks Tenaga's share price over time.⁶¹ Tenaga had two significant share price declines during the IPP period before the Asian financial crisis – in part driven by concerns over the impact of the IPP contracts.

⁵⁸ "The Size of the Generation Gap," *Project and Trade Finance*, Jan 1994, Issue 129 page 38.

⁵⁹ S. Jayasankaran, "Lighting Tenaga's Path: Malaysia grapples with an untenable power market," *Far E. Econ. Rev.*, 11/7/96 p. 93.

⁶⁰ S. Jayasankaran, "Penny Foolish: Malaysia reconsiders its generous energy policy," *Far E. Econ. Rev.*, 5/25/95 p. 61; See S. Jayasankara, "Power Surge," *Far E. Econ. Rev.*, Jan 11, 1996 ("For the year to August 1995, [Tenaga's] pre-tax profit fell 17% to 1.6 billion ringgit (\$630 million). Says Ani Arope, the utility's chairman: 'It's our worst result in four years.' ... Tenaga ...has to take up and pay for the output whether it needs it or not. As a result, the utility paid out 1 billion ringgit to the independent power producers in 1995. Says Ani: "We expect to pay out no less than 2 billion ringgit next year." As Tenaga sees it, Malaysia already has too many power producers. And in the future there will be even more, eating into its profits. Investors don't seem to like the trend either. Tenaga's share price has fallen nearly in half to 10 ringgit per share, down from almost 20 ringgit in early 1994.")

⁶¹ Price data from Bloomberg.



Once it became clear that the IPP contracts were causing serious strain on Tenaga’s profitability, Tenaga began attempts to renegotiate the long-term supply contracts with the IPPs. Political pressure on the IPPs to lower the contracted rates to Tenaga began as early as 1996.⁶² “We do not want to kill Tenaga by giving lots of profits to the IPPs,” said Prime Minister Mahathir. “It must be balanced.”⁶³ Efforts to reduce Tenaga payments to the IPPs were not limited to obligations of the PPAs. The minister for energy, telecommunications and posts, indicated that Malaysia’s five independent power producers might be asked to “take up the slack in rural electrification programs.”⁶⁴ At the time, Tenaga bore half the cost of providing unprofitable services to rural areas; the rest was borne by the federal government.⁶⁵ The IPPs eventually agreed to contribute one percent of their revenues to the rural electrification program.⁶⁶ This is where things stood between Tenaga and the IPPs until the summer of 1997, when the Asian financial crisis swept the region.

V. THE ASIAN FINANCIAL CRISIS

The Asian Financial Crisis hit Malaysia in July of 1997. Triggered by the collapse of the Thai baht, pressure on the fixed-exchange-rate ringgit became insurmountable. On July 14, the government decided to float the currency, resulting in a huge devaluation, which then triggered a major correction on the stock exchange. After the crisis hit, electricity demand growth slowed, and reserve generation capacity expanded from fifty percent to fifty-five percent.

⁶² See report on Tenaga Nasional, *International Country Risk Guide – Asia and the Pacific*, Apr 1, 1997 (Aggrieved over the rising profits of the IPPs, Tenaga began lobbying the government for more favorable treatment.”).

⁶³ S. Jayasankaran, “Lighting Tenaga’s Path: Malaysia grapples with an untenable power market,” *Far E. Econ. Rev.*, 11/7/96 p. 93.

⁶⁴ S. Jayasankaran, “Kuala Lumpur: Price of Power,” *Far E. Econ. Rev.*, 1/30/97.

⁶⁵ S. Jayasankaran, “Kuala Lumpur: Price of Power,” *Far E. Econ. Rev.*, 1/30/97.

⁶⁶ See report on Tenaga Nasional, *International Country Risk Guide – Asia and the Pacific*, Apr 1, 1997; “Malaysian Independent Power Producers Contribute to Electricity Fund,” *Asia Pulse*, Nov. 24, 2000.

A. Tenaga's Mid-Crisis Renegotiation Attempt

Because the project companies did not hold foreign debt and operations related financial inflows and outflows were denominated in local currency, the IPPs themselves were not directly hurt by the currency devaluation. On the other hand, Tenaga was hit hard by the currency depreciation; 40% of its loans, or \$2.2 billion, were dollar-denominated.⁶⁷ In the fiscal year ending August 1997, the ringgit declined by 14%, and by August 1998 it had lost an additional 41% against the U.S. dollar,⁶⁸ drastically increasing the ringgit cost of servicing its foreign debt. These increased costs were in addition to the pre-existing problems stemming from oversupply in the electricity market and the burdensome payment obligations in the IPP contracts.⁶⁹

In August 1998, after reporting its largest annual loss ever,⁷⁰ Tenaga Chairman Ahmad Tajuddin Ali announced what analysts had long suspected: that the utility was having problems paying the independent power producers and was seeking “deferments and discounts” from them.⁷¹ The Chairman suggested that the IPPs had to consider the “national interest” and hinted that if Tenaga, the sole customer of the IPPs, were to sink, the IPPs would follow. The company withheld payment to the IPPs in August and September while negotiations were pending.

Yet, it seems that Tenaga was not willing to unilaterally change the contracts. Tenaga asked the IPPs to renegotiate their rates in exchange for extending the PPAs beyond the original 21-year term. In October of 1998 the IPPs rejected this offer, but agreed to amend payment terms, giving Tenaga an extra two weeks to pay for each monthly invoice.⁷² This minor change was achieved through regulatory adjustments – the PPAs remained unchanged.

Tenaga's sense of urgency may have been eased by the fact that Malaysia fixed the exchange rate at 3.8 ringgit to the dollar in September 1998, reducing some of the financial pressure of its obligation to service hard currency-based loans.⁷³ But according to Tenaga's Zurina Zainul Abidin, the utility's management became convinced during the negotiations that “its not wise to reopen the power purchase agreements” because of the complications this would cause between the IPPs and their lenders.⁷⁴ She added that there were “smaller, regulatory items,” within the PPAs that allowed Tenaga to lower the amount paid to IPPs without reopening the agreements, but the financial impact of these changes would be small.⁷⁵ The revision in

⁶⁷ S. Jayasankaran, “Power Politics,” *Far E. Econ. Rev.*, 8/20/98.

⁶⁸ S. Jayasankaran, “Power Politics,” *Far E. Econ. Rev.*, 8/20/98.

⁶⁹ See S. Jayasankaran, “Power Politics,” *Far E. Econ. Rev.*, 8/20/98 (“...whether Tenaga needs power or not, it's bound by contract to take all that the IPPs produce -- at a cost of about 10 million ringgit a day.”); “10 million ringgit per day is half of Tenaga's daily operating budget for the supply of one-third of its total power.” “Malaysia's Tenaga Seeks to Renegotiate Power Agreements,” *Asia Pulse*, Aug. 11, 1998.

⁷⁰ 3.09 billion ringgit (\$813 million).

⁷¹ S. Jayasankaran, “Power Politics,” *Far E. Econ. Rev.*, 8/20/98.

⁷² “Struggle Over Power Prices in Malaysia” *Financial Times*, Oct. 26, 1998, p. 4; See Analyst Report: Malakoff Berhad, Kim Eng Securities, December 4, 1998.

⁷³ Once the ringgit was re-pegged to the U.S. dollar and stabilized, the currency was worth 37% less than it was before the crisis (from about 2.5 RM per dollar to 3.8 RM per dollar).

⁷⁴ “Struggle Over Power Prices in Malaysia” *Financial Times*, Oct. 26, 1998, p. 4.

⁷⁵ “Struggle Over Power Prices in Malaysia” *Financial Times*, Oct. 26, 1998, p. 4.

payment terms had minimal effect on the profitability of the IPPs.⁷⁶ “Its peanuts,” said a Tenaga official.⁷⁷

B. Project Cancellation

In reaction to the financial crisis, one IPP project was cancelled.⁷⁸ However, the cancelled project was an anomaly from its inception, and best considered as separate from the larger family of IPP projects. Bakun Dam was a very controversial hydro project in Sarawak (eastern Malaysia) that was to deliver power to peninsular Malaysia via underwater cables. The contract to build and supply the power was awarded, through private negotiation, to Ting Pek Khiing’s Ekran Corporation. Ting was a businessman from Sarawak with no experience in dam building, power cable laying, or power plant construction – but reportedly a “close personal friend of the Prime Minister.”⁷⁹ The project was extremely controversial because of its questionable technical feasibility (a 650 kilometer undersea transmission cable had never been accomplished before), the environmental impact, and massive resettlement of more than 10,000 indigenous people whose communities were to be lost to the dam.⁸⁰ Ekran fell into financial trouble and became entangled in a dispute with the lead contractor, ABB, over changed conditions. In September 1997, the government postponed the project, using the financial shocks as a justification and bought out Ekran’s rights to the project for roughly US\$250 million.⁸¹

After assuming ownership the government (temporarily) cancelled the project. However, now that Malaysia is out of the crisis and once again in need of power, work on the project has resumed, but with revised scope (no longer will the power be diverted to peninsular Malaysia via a sub sea transmission line⁸²) and possibly revised scale (it may no longer be a 2.4 GW project).

⁷⁶ Risen Jayaseelan, “Current Affairs,” *Malaysian Business*, Dec. 16, 1999 (“While [the threat to unilaterally alter the contracts] initially irked many players in the industry, their fears have been largely assuaged. All that was altered was a billing scheme in which TNB’s payments were to be made monthly rather than weekly. The revised interim billing, in fact, has not materially affected [the IPP’s] financial footing, say analysts.”); *Also see* Analyst Report: Malakoff Berhad, Kim Eng Securities, December 4, 1998.

⁷⁷ “Struggle Over Power Prices in Malaysia” *Financial Times*, Oct. 26, 1998, p. 4 (“Both sides said that the financial impact of the new payment schedule will be minimal.”); *See* Analyst Report: Malakoff Berhad, Kim Eng Securities, December 4, 1998.

⁷⁸ Some projects may have been delayed. Preliminary research has found that no projects that had signed PPAs were delayed but projects that were awarded the government concession but did not yet complete the PPA may have been delayed. Some projects developed by Tenaga were delayed, which may have added to the confusion of some observers. Further research should investigate which, if any, IPP projects were delayed, whether the delay imposed a significant cost on the developer, whether the developer reasonably believed that it should not have borne the risk of this cost, and whether the cost of delay was indemnified.

⁷⁹ Thomas B. Smith, “Privatising Electric Power in Malaysia and Thailand: Politics and Infrastructure Development Policy,” *Public Administration & Development*, Aug 2003; 23, p. 278.

⁸⁰ *See Energy Economist*, Sep 1997. Iss. 191, page 39-41 (“Analysts have breathed a sigh of relief, and hope this is the beginning of the end for a project that was to displace 10,000 local residents and is causing food shortages as a result of rockslides and floods caused by diversion tunnel construction. ABB has been under increasing pressure from NGOs who brand the dam socially and environmentally destructive, but the engineering company has not yet given up all hope.”).

⁸¹ WMRC Country Report: Malaysia (Energy) December 2004. Further research should investigate the appropriateness of this compensation.

⁸² *See* Douglas J. Smith “Reawakening of the Asian Tiger,” *Power Engineering*, August 2000.

C. Emergence from the Financial Crisis

Tenaga returned to profitability in the first half of fiscal 1999 (ending Feb 28, 1999), the period immediately following the recording of its worst-ever loss and the unsuccessful PPA renegotiation attempt.⁸³ The power glut was over by 2000 and the power regulator indicated a need to build new capacity. Malaysia and the rest of Asia were well out of the Asian Financial crisis by the end of 2000.

As of February 2001, reserve capacity was restored to normal levels, or about 24%.⁸⁴ Tenaga stated at the time that it was comfortable with a reserve margin of 15-25%.⁸⁵ In May of the same year it was reported that Malaysia was in an electric energy shortage.⁸⁶ Tenaga warned that the margin would slip to 10-15% by early 2002, and urged the government to expedite the approval of planned projects.⁸⁷

D. Post Crisis Developments

In January 2001, after Malaysia had emerged from the crisis and the exchange rate was under control; after Tenaga had returned to profitability; and after the balance of supply and demand of electricity was restored, Tenaga began actively seeking new power agreements. Tenaga made agreements for new power from existing IPP facilities,⁸⁸ from new projects sponsored by existing IPP owners, and from new projects sponsored by new investors. The agreed purchase price for this new power was about twenty percent lower than the agreed tariff in the earlier PPAs. The new deal structures were also more favorable to Tenaga on other measures including required availability targets and allocation of fuel risk. *Investor Digest* reported that “(a)nalysts think the new terms of the PPA and [gas supply agreement] pose a higher risk and may discourage prospective promoters and investors of new IPP projects.”⁸⁹

Malakoff, an original IPP investor and Malaysia’s second largest power producer after Tenaga, was awarded a concession for the GB3 project and signed a PPA for 12.14 sen

⁸³ “Malaysia’s Tenaga to Swing to Profit in 1st half, Paper Says,” *Bloomberg News* March 23, 1999 (“The second biggest capitalized stock in the country after Telekom Malaysia Bhd., will post profit because of ‘better position’ of Malaysian ringgit [fixed exchange rate] and increased power consumption”).

⁸⁴ Dominic Jones, “U-turn?” *Project Finance*, Feb 2001; pg. 11.

⁸⁵ Dominic Jones, “U-turn?” *Project Finance*, Feb 2001; pg. 11.

⁸⁶ Dominic Jones, “Cheap and deep” *Project Finance*, May 2001; 217; pg. 47 (“The GB3 development is also one of the three IPP projects put on fast track by the government due to the energy shortage that Malaysia now faces.”).

⁸⁷ Economist Intelligence Unit *Country Report: Malaysia, Brunei 4Q 1998*, at page 29; *But see* World Markets Research Center, “Malaysia: New PPAs to be Signed by July,” June 1, 2001 (“Malaysia’s reserve capacity currently stands at 40%, whereas 20-30% is widely seen as satisfactory.”).

⁸⁸ *See, e.g.,* World Markets Research Center, “TNB to Buy More Power from IPPs,” Jan 18, 2001 (“Tenaga Nasional Bhd (TNB) yesterday announced that it has agreed to buy an additional 1,400 GWh per year of electricity from YTL Power, at a price of 10.9 sen per kWh. YTL Power is the country’s original independent power producer (IPP) and operator of the Paka and Pasir Gudang power plants. The purchase deal will last for three years, backdated to start from 1 January 2001, and will augment the existing purchasing agreement, which was signed in 1993. TNB presently buys around 900MW - 73% of YTL Power’s generating capacity - at a price of 15.1 sen per kWh. The new deal will boost utilisation of YTL Power’s existing capacity to over 90%. TNB yesterday expressed its aim to make further purchases of power from IPPs, as demand continues to rise.”).

⁸⁹ Shirene Shan, “IPPs, Tougher Times Ahead,” *Investor Digest*, New Straits Times Press, Mar. 1, 2001.

(US\$0.031) per kilowatt hour.⁹⁰ SKS Power, controlled by the same investor that controls Malakoff,⁹¹ signed a PPA with Tenaga for the 2,100 MW coal-fired Tanjung Bin power plant. According to Tenaga, this PPA for the first time shifted some of the demand risk to the IPP.⁹² YTL power, the investor in Malaysia's first IPP, was awarded a concession for the 2,100 MW coal-fired Jimah project, but ultimately never completed a PPA with Tenaga and withdrew from the project.⁹³ Contrary to some reports,⁹⁴ these new agreements did not affect the terms of the older PPAs.

It is notable that the IPPs were willing to form new agreements at rates considerably less than that which was agreed in the first round of projects. Even if Tenaga lost some credibility by threatening to unilaterally modify the terms of the first contracts, the IPP investors were willing to undertake similar deals for less compensation. At least one of the IPP investors must have been very confident in their relationship with Tenaga, as exemplified by the fact that Malakoff signed construction contracts and proceeded with construction eight months before the PPA was signed.⁹⁵ On the other hand, the enthusiasm of another prominent investor dimmed considerably in the post crisis atmosphere – YTL secured a concession for Jimah but later abandoned the project because it was unable to agree on a PPA with Tenaga. The lower tariffs in the second wave of IPPs can be explained by a number of factors including: increased commercial sophistication of Tenaga and the Malaysian government, the increased competition for contracts, and finally, as we have seen in the development of IPP sectors in other countries including the United States, the passage of time and the establishment of a successful track record will serve to lower the perception of risk in the industry thereby lowering required rates of return.

F. The Future of the Malaysian Electricity Sector

After the 1997 financial crisis, there were moves to implement a power pooling system that would allow for full liberalization of the power-generation sector and remove restrictions on IPPs in the transmission and distribution of electricity, but the California power crisis put an end to those plans.⁹⁶ The California deregulation fiasco gave strength to arguments that stability is far more important than theoretical efficiency gains that might result by injecting competition throughout the value chain. Now that it has abandoned the power pool proposal, Malaysia wants to inject more competition into generation by implementing an open bidding system for power

⁹⁰ World Markets Research Center, "Tenaga Negotiates Lower Tariff with Malakoff," June 28, 2001; *See* Annual Report 2001 Malakoff Berhad.

⁹¹ *See* "Malaysia's Malakoff plans to add power plant," Electricity Forum News, June 2003 ("SKS Power is part of SKS Ventures Sdn Bhd, which is led by businessman Syed Mokhtar AIBukhary. Syed Mokhtar already controls Malakoff...").

⁹² *See* Tenaga Analyst Briefing, available at <http://www2.tnb.com.my/tnb/dynafiles/AnalystBriefing1.ppt>.

⁹³ World Markets Research Center, "YTL and TNB Fail to Agree Rates for Power Project," Oct. 20, 2003 ("YTL has pulled out of the planned Jimah coal-fired power project after failing to secure a satisfactory tariff agreement with state-owned Tenaga Nasional Berhad (TNB). YTL was awarded a contract to build the plant in 2001, but has subsequently been locked in negotiations with TNB over the tariff structure.").

⁹⁴ *See* World Markets Research Center, "TNB Has the Last Word in Negotiations," July 17, 2001 ("TNB has also succeeded in re-negotiating purchase agreements with Malakoff, Sepang Power and Powertek").

⁹⁵ The PPA was concluded just 6 months before the project was scheduled to come on line. Thus Malakoff was willing to face an "obsolescing bargain" even before the PPA was signed. *See* Malakoff Annual Report 2001, at 52.

⁹⁶ *Malaysian Business* Feb. 1, 2004, page 23

plant construction projects. This will replace the practice of awarding projects directly to companies through private negotiations.

VI. ANALYSIS OF THE MALAYSIAN IPP EXPERIENCE

A. Was the IPP Program a Success or a Failure?

Given what we know about the Malaysian IPP experience, we must assess that the experience from the investors' perspective was very positive.⁹⁷ We don't know exactly how much money the sponsors made,⁹⁸ but all accounts indicate that the first wave of investment was very profitable. One analyst said, "The first batch of IPPs, namely YTL Power, Malakoff, Genting Sanyen, Powertek and PD Power Bhd derived between eighteen and twenty-five percent internal rate of return (IRR)."⁹⁹ Other observers said that the first five IPPs had been "laughing all the way to the bank" as they had been enjoying favourable terms 'not found anywhere else in the world.'¹⁰⁰ Additionally, all of the original players are still in the business¹⁰¹ and willingly entering new contracts at rates lower than agreed in the first round of investment.¹⁰² As to the second wave of investment, an analyst said that "the market expectation is that any new PPAs signed with [Tenaga] will give an IRR of only about twelve per cent."¹⁰³ That Tenaga was willing to threaten unilateral revision of the contracts and withhold payment for two months¹⁰⁴ may have hung a cloud over the sector, but during the crisis period, IPPs were perceived by at least one analyst to be one of the best sectors in which to invest.¹⁰⁵ Publicly listed IPPs have provided a better return than both the Kuala Lumpur Stock Exchange index and Tenaga during

⁹⁷ Other accounts of the experience come to the opposite conclusion. Witold J. Henisz and Bennet A. Zelner, "The Political Economy of Private Electricity Provision in Southeast Asia," A Working Paper of the Reginald H. Jones Center, The Wharton School University of Pennsylvania (2001-2002).

⁹⁸ But we have *some* data. YTL was the largest IPP investor. (Malakoff has since become the largest owner of IPPs) YTL's profit in 1996 was over RM700 Million (US\$280 million). This was almost equal to Tenaga's profit in the same year. In FY1999, YTL's profit margin was 47.7% of sales. Thomas B. Smith, "Privatising Electric Power in Malaysia and Thailand: Politics and Infrastructure Development Policy," *Public Administration & Development*, Aug 2003; 23, p. 278. Further research to investigate IPP profitability should first investigate the Powertek Experience -- for it may be the easiest to decipher. Powertek, which owned three plants, had an initial public offering in 1997 and later was purchased in whole by Tanjung PLC, a publicly listed company in the UK and Malaysia, in 2003.

⁹⁹ Risen Jayaseelan, "Current Affairs," *Malaysian Business*, Dec. 16, 1999.

¹⁰⁰ Ronnie Lim, "Power Game in Malaysia Changes for the Better" *Business Times Singapore*, May 29, 1998.

¹⁰¹ Except Malaysian Resources (MRCB), which was divested its generation assets as part of its corporate reorganization/restructuring. MRCB became insolvent for reasons unrelated to its investments in IPPs.

¹⁰² On the other hand, most, if not all of the investors had business activities in other sectors. It is not out of the question that they unwillingly signed the new IPP contracts with the expectation of compensation from an entirely different sector.

¹⁰³ Risen Jayaseelan, "Current Affairs," *Malaysian Business*, Dec. 16, 1999.

¹⁰⁴ That the project companies were able to withstand 2 months of non-payment without buckling to Tenaga's pressure suggests that the project companies may have had a larger cash cushion than the average IPP project company. At least one of the IPPs debt repayment obligations had not yet commenced. YTL Power's bond repayment obligations did not begin until 1999. YTL Power International Berhad, Annual Report '04 page 94

¹⁰⁵ "Stuck in Malaysia? IPPs and Gambling Stocks Could Be Best Bets" *Bloomberg News*, Dec 3, 1998.

the relevant period. (See Appendix A) Separately, it seems that bondholders and lenders to the project companies were paid according to originally contracted schedules without difficulty.¹⁰⁶

Malaysia's IPP experience, in consideration of the policy and developmental goals of the government of Malaysia, should be considered as a qualified success. The government's highest priority, installation and management of adequate generation capacity to facilitate high economic growth, was achieved. Moreover, the privatization of Tenaga and the local financing of the IPPs contributed to the development of local financial markets. This success is blemished by the fact that the contracts were probably too rich for the IPP sponsors. Consequently, a higher than necessary cost of power resulted in financial losses to the government controlled utility, higher prices to consumers, and arguably an inefficient allocation of society's resources. But this defect should not be overemphasized: timely expensive power is a far superior outcome than blackouts that discourage FDI and domestic investment, and stunt economic growth. Additionally, if someone is going to reap exorbitant profits, it is probably better from a political standpoint that they be domestic investors, as they were in Malaysia, rather than foreigners. Finally, Tenaga made a number of commercial improvements to the PPA used in the second round of investment: tariffs were lowered and there was a more balanced allocation of risks.

B. Why did the Contracts Hold?

It is notable that the PPAs were not altered during the economic crisis—a period when there must have been tremendous pressure on Tenaga to unilaterally change the terms of its expensive obligations to the IPPs. The national off-taker was forced to manage a debt crisis while it was hemorrhaging due to the expensive IPP contracts coupled with low power demand. Nor were they altered in 2001 as some reports have indicated.¹⁰⁷ This conclusion would be hardly a surprise to those close to the deals but others have somehow been given a different impression.¹⁰⁸

In 1998, IPPs constituted about thirty-five percent of Tenaga's capacity (and even more of production) and were more expensive than Tenaga's own generating capacity. Power demand was low and Tenaga was contractually bound to purchase power that it could not sell. The drop in electricity demand brought on by the Asian financial crisis exacerbated these problems, but the fact that fuel for the IPPs was produced domestically and the projects were financed exclusively in local currency significantly mitigated the stress of the crisis.

¹⁰⁶ Further research should investigate whether trading value data for project bonds are available.

¹⁰⁷ See *supra* note 94.

¹⁰⁸ In researching for this working paper we have encountered reports that assert the PPAs were renegotiated. But we have looked for and discovered no direct cause to believe that any PPAs were renegotiated either in 1998 or 2001, while we have encountered sufficient basis to conclude that they were not. In private interviews with the author, both a Tenaga official and an attorney involved in the deals confirmed that the PPAs were never altered. In 2001 and 2002 reports to investors, Tenaga highlights progress that they made in reducing foreign debt exposure, but there is no mention of changed PPAs. In a 2004 report to investors, Tenaga reported that the average cost of purchased IPP power was about 15 sen per KWh, which is the level they were set in 1993/1994. YTL Power annual reports and Malakoff Bhd. annual reports in 2001 and 2002 make no mention of changed PPAs, yet Malakoff highlights the completion of a new PPA for a new project that happened to be signed on the very day others reported that "re-negotiations" were completed.

In light of the breaches of contract and forcible renegotiations seen in the IPP sectors of India, Pakistan, and Indonesia, we might not have been surprised if in a country like Malaysia, with a weak rule of law, the state-controlled power company under serious duress decided to change the rules on investors after the investment was in place and the balance of leverage shifted. But this did not happen. How was it that the IPPs could withstand Tenaga's pressure to renegotiate in a time of national crisis? Was it because of the strength of their legal protections, or was it something else?

We offer the following hypothesis, which has two distinct parts. First, the outcome of the 1998 renegotiation attempt was not the result of a two-party negotiation. Nor was it influenced by the expected value of the legal claims that either party may have brought. While the public position of the government at the time was that the dispute was not a government affair and that it should be resolved by Tenaga and the IPPs themselves,¹⁰⁹ behind the scenes, the exact opposite was true.¹¹⁰ The outcome of the 1998 renegotiation attempt was determined and orchestrated by one actor, the Malaysian government. Second, we identify a handful of considerations that might have influenced the government's decision not to allow a renegotiation of the PPAs.

The Malaysian government was the final decision maker and orchestrator of an agreement not to re-open the PPAs. Because the government had connections or control over each major stakeholder, there was no need to resort to the courts. It may very well be that because the courts were not believed to be reliable, an organizational structure that was held together with personal and ownership relationships was deliberately chosen so as to have a mechanism for commitment enforcement and dispute resolution without the courts.¹¹¹ In the aftermath of the crisis, the Malaysian government was involved in each of the key stakeholders in the IPP sector:

- The government was a controlling shareholder in Tenaga. It appointed the Tenaga board and had final authority over any significant corporate decisions.
- The government was an indirect shareholder in the IPPs. The government's super majority shareholdership in Tenaga flowed through Tenaga's ten to twenty percent stake in all but one of the IPPs at the time of renegotiation.
- The principle lenders to the IPPs were state-controlled. Most of the banks lending to the projects were state banks. The state pension fund was by far the largest bondholder lending funds to the IPPs. In some cases it was the only bondholder. Needless to say,

¹⁰⁹ See Assif Shameen, "Who Pulled the Plug? - Low electricity for Malaysian utility counters" *Asiaweek*, September 4 1998 ("Prime Minister Mahathir Mohamad has said the government won't intervene in dealings between the electricity behemoth and the IPPs.")

¹¹⁰ In a private interview with the author, an ex-Tenaga official explained that the government (not an independent Tenaga) made the final decision, indicating that after the crisis, the government saw FDI as crucial to economic recovery and was concerned about the reputational effects of forcing a PPA renegotiation. A private investor confirmed with the opinion that if the government wanted there to be a system-wide "haircut" there would have been one.

¹¹¹ This idea is developed in Witold J. Henisz and Bennet A. Zelter, "*The Political Economy of Private Electricity Provision in Southeast Asia*," A Working Paper of the Reginald H. Jones Center, The Wharton School University of Pennsylvania (2001-2002)

the government had influence and control over the decisions of state controlled banks and the state pension fund.

- Finally, the promoters and principal investors in the IPPs reportedly had close personal ties to the prime minister and his close associates. The government was also the regulator of the IPPs and therefore capable of imposing future costs on the IPPs.

Given these extensive relationships, the fallout from the crisis for the IPPs in Malaysia was constrained by a number of factors. These include, concern over the reputation effects of instigating a dispute in the IPP sector, particularly given the troubles that were facing foreign investment throughout Asia at the time, and Malaysia's successful incorporation of FDI in its own manufacturing sector as a driver of economic growth. Because of the broad reliance on domestic capital markets to finance the IPPs in Malaysia, decisions regarding the IPP sector here affected a distinct constituency than in many other IPP sectors. At the time, foreign equity investment in Malaysia was broadly spread in the power sector—including substantial investment in both IPP sponsors (e.g. National Power's 15% stake in Malakoff), and in Tenaga itself.

Policy decisions on this front were made in an environment characterized by two factors unique to Malaysia. First, Tenaga's obligations (and the project companies' financial structure) were comparatively less vulnerable to currency risk, due to reliance on local capital and fuel inputs. Second, the network of relationships that connected equity holders and sponsors to debt holders and other lenders to government policy makers (and to Tenaga itself) likely opened avenues of communication and accommodation that were not available elsewhere in the IPP universe. IPP arrangements in Malaysia thus faced less pressure than in other countries that faced macroeconomic troubles, and were manageable through a range of relationships that also were not common in other countries.

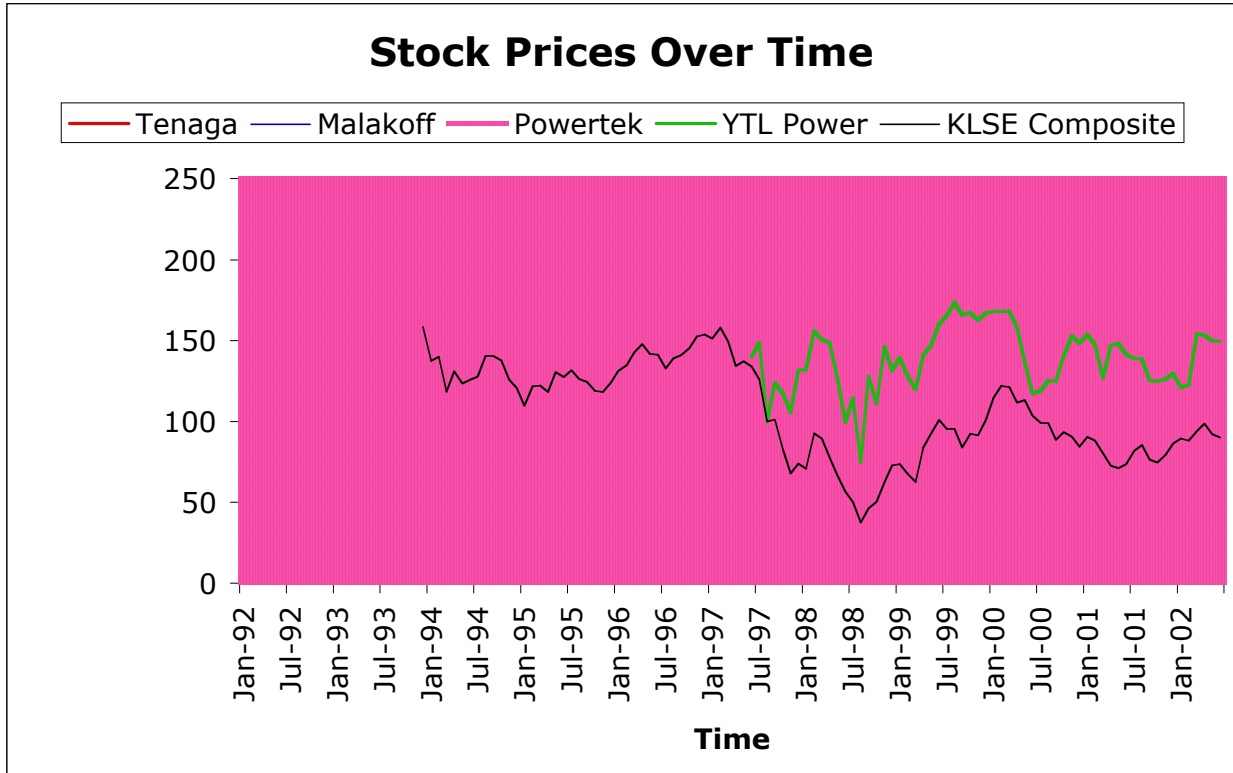
VII. CONCLUSION: MALAYSIA IN THE IPP STUDY.

In the context of the larger IPP study, the Malaysian experience has been incorporated using the country as the primary unit of analysis. While differences between projects undoubtedly played a part in the experience, the key elements of the Malaysian IPP sector—including local finance and sponsorship and the experience of macroeconomic shock—are country level factors. In this sense, Malaysia offers a critical counterpoint to other countries in our sample that experienced macroeconomic shock, but had structured their IPP programs differently, such as Thailand (hard currency denominated inputs, competitively bid project allocation), and the Philippines (hard currency denominated inputs, long standing and evolving IPP program). While the reliance on local capital markets likely contributed to the stability of the IPP program, by minimizing exposure to macroeconomic shock and by keeping equity, debt, and offtakers all within a relatively limited network with ties to the Malaysian government, this model is not immediately available for other countries that lack mature capital markets.

Currently, we do not anticipate conducting in-depth project level work in the Malaysian case. Nonetheless, as Malaysian companies, including Genting and Malakoff, are increasingly active international players in the IPP market, the experience of IPPs in the first round

investments in Malaysia merits a deeper examination though field research and interviews. Opinions on the nature of the Malaysian IPP experience have differed, and information regarding particular projects has been difficult to gather from afar.

APPENDIX A



Source: Company Data: Bloomberg, KLSE Data, Yahoo! Finance.¹¹²

¹¹² The data are indexed to August 1997, the month that Ringgit was devalued and arguably the month when the crisis “hit” in Malaysia.

Appendix B: Universe of Greenfield IPPs¹¹³

Project Name	Owner	Licensee	Capacity	Fuel	License Date
Paka & Pasir Gudang	YTL Power	YTL Power Generation Sdn Bhd	1212MW	Natural Gas	Apr 93
Genting Sanyen	Genting Bhd Industrial Group	Genting Sanyen Power Sdn Bhd	762MW	Natural Gas	Jun 93
Segari Lumut	Malakoff Bhd	Segari Energy Ventures Sdn Bhd	1303MW	Natural Gas	Jun 93
Telok Gong 1	Cergas Unggul Sdn Bhd (<i>org</i>) Tanjong plc (<i>current</i>)	Powertek Bhd	440MW	Natural Gas	Dec 93
Port Dickson	Hypergantic Sdn Bhd (<i>acq by Malakoff</i>)	Port Dickson Power Bhd	440MW	Natural Gas	Dec 93
Powertron	EPE Power, Sabah Energy Corp., Time Engineering	Powertron Resources Sdn Bhd	120MW	Natural Gas	Feb 97
Perlis TTPC	Alpha Intercont'l Bhd, Gerbang Sutera Bhd., Landmarks Bhd.	Teknologi Tenaga Perlis Consortium	650MW	Natural Gas	Aug 98
Prai Power Plant	SKS Ventures / Malakoff Bhd	Daerah Severang Perai Tengah Pulau Pinang	350MW	Natural Gas	Feb 01
GB3	Malakoff Bhd.	GB3 Sdn Bhd	650MW	Natural Gas	Aug 01
Telok Gong 2	Powertek	Panglima Power Sdn Bhd	720MW	Natural Gas	Aug 01
Pahlawan (Powertek)	Cergas Unggul Sdn Bhd	Pahlawan Power Sdn Bhd	334MW	Natural Gas	May 99
Jimah	YTL Power / SKS Power (<i>YTL sold interest</i>)	SKS Power	1400MW	Coal	<i>Not complete</i>
Tanjung Bin	SKS Power (<i>controlled by Malakoff</i>)	SKS Power	2100MW	Coal	<i>Not complete</i>
Bakun Dam	Ekran Corp.	Bakun Hydro	2400MW	Hydro	<i>Not complete</i>

¹¹³ Primary source: Malaysia Electricity Commission, "Statistics of Electricity Supply Industry in Malaysia Year 2004 Edition" (complemented with information from World Bank PPI database and news sources)

Selection of Small-Scale IPPs in Malaysia

Owner / Licensee	Capacity	Fuel	License Date
Projass Engineering Sdn Bhd	17MW	Hydro	Apr 94
ARL Tenaga Sdn Bhd	50MW	Diesel	Jun 94
Musteq Hydro Sdn Bhd	20MW	Hydro	Nov 94
Serudong Power Sdn Bhd	36MW	Diesel	Mar 95
Stratavest Sdn Bhd	64MW	Diesel	Oct 96
Sandakan Power Corp. Sdn Bhd	34MW	Diesel	Nov 97