

A look at a unique financing proposition

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Daily Mirror

A Gulf country for the setting up of a Thermal plant

by G. Atapattu

Re-reading the various articles that appeared in your newspaper over the past several months on the subject of the power crisis, I am sure that one is able to distinctly identify several lobbies supporting one or the other of the fuel inputs for power generation.

Firstly, there is the coal lobby spear-headed by a former CEB official, Dr. Thilak Siyambal-

apitiya. In the latest of the articles written by him and published in the DN under the caption "Coal power delay and your electricity bills in 2004, he estimated that without the coal-generated power of Norochcholai and Mawella, a household using 150 units of electricity a month would have to pay Rs. 1,085 as against Rs. 538, it would have had to pay, had the two coal-powered units come on stream in 2004 as originally planned, the output of

both units being available at a basic fuel cost of Rs. 1.60 a unit. Counterbalancing that lobby is the anti-coal lobby headed by Dr. Janaka Ratnasiri, the new President of the Association for the Advancement of Science. In the several articles that he wrote to the *Daily News* he challenged the argument that coal was the least cost fuel for power generation. Apparently, he has been proved right judging by the information available regarding

a US\$ 700 million coal-fired power plant called Meizhou Wan in China, where a low-sulphur coal and prohibitively expensive electrostatic precipitators are used, thereby, making the plant one of the three most expensive power producers in the world. (Page 53, *Far Eastern Economic Review* 30.01.2002). Professor J. Jinadasa of the University of Sri Jayawardanapura, without supporting one or the other of the fuel lobbies, whilst

blaming the officialdom in the CEB for scuttling the best-laid plans for the energy sector, very cogently argued that there was nothing that technology, properly harnessed, could not do. In the article he recently wrote to the *Daily News*, he said, I quote, "Machines are available, raw material is plentiful; why then is the delay? It is as simple as assembling a car."

N. A. C. Goonathilaka, in his article, which appeared in the *Daily News* of 28.2.2002, emphasised the need, as a long-term solution to the energy crisis, to harness solar energy, an infinite resource, for power generation and indicated how important it is for a sun-bathed tropical country like Sri Lanka. To quote Mr. Goonathilaka, "in the light of the above facts, it seems very clear that the direct conversion of sunlight into electricity using solar cells is the most ideal long-term solution to our power problem."

In an article published in the *Economist* of 10.02.2001, and reproduced in the DN of 19.02.2002, the writer, one Vijay Vaiteeswaran, wrote: "The world of energy is being turned upside down. The best thing Governments can do is to get out of the way. Also, in a reversal of the conventional wisdom of two decades ago, most experts now believe that oil and specially natural gas will be plentiful for decades hence and that the means of converting these fuels into useful energy such as internal combustion engines and combined-cycle gas turbines, will grow ever more efficient."

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It is very strange that in our country, whenever a major project designed to alter the status quo in the north-western coastline is proposed, the smuggler fraternity who hold sway in the coastline power dynamics and who seem to think that, that area is their exclusive preserve, lead the protests galvanising into action the various interest groups, who like to fish in troubled waters for their own ends.

who seem to think that, that area is their exclusive preserve, lead the protests galvanising into action the various interest groups, who like to fish in troubled waters for their own ends. This was true in the case of the Voice of America transmission project as well as the Norochcholai project. Smugglers specialising in Indian contraband, drugs and now human cargo would never stop short of anything, if they sense a threat to their livelihoods and ill-gotten-luxurious life styles. If Norochcholai was allowed to be

set up, the colliers carrying coal to and returning after delivery to Norochcholai would have started criss-crossing the smugglers' routes off Kalpitiya, Chi-

Total existing electrical power capacity was all thermal, with 23 per cent coming from diesel engine units, principally located in the interior. With power consumption projected to register an average increase of 5.5 per cent per annum, capacity requirement was expected to grow from 1343 MW to 2294 MW through 1994-2003. The Government was looking forward to this additional capacity being provided by private power generation.

In 1992, the country discovered and extensive natural gas field located about 150 miles away from the capital. No sooner than the news of the gas field reached the petroleum industry investors/speculators than hordes of them descended on the capital promising/proposing exploratory/gas-lifting collaboration and related technical expertise.

The first to appear on the scene were the Indians, who promised substantial investment for the export of gas through a deep-ocean pipeline to the power-hungry industrially burgeoning Indian sub-continent.

The Pakistanis came next, again with a proposal to pump the gas through a deep-ocean pipeline to Iran and then to Pakistan, with Iran providing a substantial portion of the investment outlay. When preliminary pre-investment surveys were done, it was found that a deep-ocean pipeline, although technically feasible, was prohibitively expensive even for oil-producing countries of the Middle East.

Vital statistics

The population of this oil-producing country in 1994 was only 2 million growing at a constant annual rate of 3.5 per cent. Power consumption had a historical growth rate of 5.5 per cent and was expected in 1994 to grow at about the same rate in the future. The Government wished to attract foreign private investment to meet its expanding infrastructure requirements.

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A Gulf country...

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What with infrastructure for the export of gas needing also heavy capital investment and the Government's inability to provide the funds, the country's ruler, committed, as he was to sustainable development and rapacious exploitation of the country's natural resources, decided to let the gas lie where it was. The Government, then, diverted its attention to using the gas for power generation.

Power project concept

The project had a pioneering role in that it was the first privately owned power plant in the country as well as in the Gulf region. Power shortages had been experienced in the interior, where, generation was through diesel units. The project envisaged to supply power at a competitive cost and was in line with the World Bank's encouragement of private sector participation in the energy sector.

The project comprised two components. (a) To build, own, operate and transfer (BOOT) a 30 MW natural gas-fired open-cycle combustion turbine power facility and (b) To build, own, and transfer (BOT) approximately 186 kms of transmission lines and associated sub-stations inter-connecting the plant to load centres at three towns in the interior and an inter-connection to the country's main grid centred on the capital. The power plant was to consist of 3 open-cycle General Electric (GE) MS 6001 (Frame

6) natural gas-fired turbines, each rated at 38MW ISO. Hot and humid conditions with summer temperatures exceeding 50C were expected to result in the turbines having an output of 30 MW. If at times gas was not available, the plant was designed to operate on diesel gas oil. An oil storage tank with capacity for 5 days of load operation was one of the components of the project package, which, among other things, included instrumentation and switchgear. Site auxiliary works comprised site levelling, foundation berms to protect against flooding, fire protection systems, solid waste disposal facilities, administration, maintenance and housing facilities.

The project was to be implemented and owned by a public company, the equity of which was to be held by the foreign collaborator to the extent of 32.81 per cent, by the local sponsor to the extent of 21.87 per cent and by the investing, public to the extent of 41.5 per cent, which was to be realised by way of a public share offering in the country's stock market.

The total project cost was US\$ 242.9 million, with base case financing requirement fixed at US\$ 218.6 million. Initial working capital and a standby facility to take care of any cost overruns and any shortfall in the public offer and an equity-in-kind contribution pushed the total project value to US\$ 242.9 million, to be financed by

loans to the extent of US\$ 75 million, of which, US\$60 million was to be provided by the International Finance Corporation, the soft-loan agency of the World Bank and US\$15 million by the local banks, these institutional lending accounting for 52% of the total loans. Export credits were to provide US\$ 67.4 million or 48% of the total loans of US\$142.4 million. The equity scenario was that US\$29.6 million or 41.5% of the total equity of US\$ 71.2 million was to be provided through a public share offer, US\$ 21.5 million or 30.3% by the foreign collaborator and US\$ 16.2 million or 22.7% by the local sponsors of the project.

The most important factor in the financing scheme was the involvement of the IFC in both equity and debt of the project and the participation of the foreign collaborator/power plant supplier in the equity of the project. Another important factor was the utilization of export credits from two export credit guarantee corporations of the two countries, where, turbines and the associated equipment were to be manufactured. The export credits carried a 12-year maturity period with one credit carrying in interest factor 6.63% per annum and the other 8.21% per annum.

The financial projections for the project were based upon a 56% level of plant dispatch. Given this assumption, tariffs for the supply of electricity

from the plant were expected to peak at US\$ Cents 8.8/kwh in 1998 gradually decreasing to US\$ cents 4.1/kwh in 2016, for a levelized rate of US\$ cents 6.8/kwh and a total project average tariff of US\$ cents 0.082/kwh. The project was expected to maintain a solid financial position with a high profitability and a strong debt service capability.

Since the Government was expected to pay the project in local currency, and only part of the payment was indexed to the US\$, the principal risk to the viability of the project was any devaluation of the local currency.

However, due to the partial indexation of the Government's payments to the currency equivalent rate, even if the local currency were devalued by 50% vis-a-vis the US\$, (last devaluation was in 1986 when petroleum prices reached the lowest through for many years) debt service, would still have been satisfied with a minimum debt service coverage of 1.08. Another factor, which was thought to impact project viability in a substantial way, was the level of plant dispatch.

Whilst a dispatch level of 56% had been used for the project's financial performance forecast, a reduction in the dispatch level of even to 20% would, still have given the project a minimum debt service coverage of 1.31. Other factors, which could have impacted the project, though to a lesser

extent, included operation and maintenance costs, interest rates and local equity shortfalls and cost overruns. However, when viewed from each one of the different scenarios, the robustness of the project was quite evident.

Project implementation agreement

The government's April 1992 tender calling for bids for the least cost of generation and transmission attracted 8 pre-qualifying bidders and 3 final bidders with the winner being given the right to negotiate an Implementation Agreement, Power Purchase Agreement and a Land Lease Agreement with the Government. The Implementation Agreement consisted of a two-year construction period and a 20-year operation and power purchase term. At the end of the 20-year PPA, (approximately representing the expected serviceable life of the power generation equipment), the plant and the lines would be transferred to the Government for the nominal amount of 1 local currency. Whilst the project was to have sold all of the electricity produced to the Government, the Government, on the other hand, was to have guaranteed a fixed fuel price for the entire 20-year term of the PPA.

A local group and a foreign group sponsored the project. The foreign group was a major conglomerate active in the

areas of electricity, gas, communications, water, environment, real estate and infrastructure. The group's engineering subsidiary was one of the world's largest engineering consultancy companies with over 2000 engineers. With the engineering subsidiary as project engineers, and with another subsidiary responsible for overall project operations, the group was looked upon to be able to ensure proper design, construction, completion and operation of the project. As a result of the Group's extensive experience, depth of expertise and resources in gas and power plant engineering, ownership and operation backed by their solid financial resources, the group was expected to successfully bring the project on stream.

Environmental aspects

The environmental division of the IFC categorized the project as a "B" project, meaning that it could adversely impact the environment but the effect thereof was amenable to be altogether avoided or mitigated by strictly following the generally accepted performance standards, guidelines or design criteria. Based on its criteria, IFC concluded that the project was designed to meet the World Bank's environmental health and safety policies and guidelines and the host country's requirements. The environmental issues associated with the

project included the following:
a) Air emissions from the generating facility.
b) Construction impacts along the transmission lines right of way, and
c) Noise from plant operation.

"The plant when fuelled by natural gas will comply with World Bank guidelines, for ambient air quality. Noise contribution from the plant at the nearest village will be 42 dBA. Use of water for operation of the plant will be minimal since no cooling water is required. Septic systems will be used for sanitary wastes and all domestic and hazardous waste will be transported off-site for licensed disposal." Page 15 of the downloaded copy of the project report.

The electricity tariff available in 1994 was Government-subsidized. The project's primary objective was to increase load factors, which, in turn, was expected to lower costs of power supply and thereby reduce the amount of any subsidy. The Government was committed to a policy of introducing more economic tariff structures, which would reflect the twin objectives of energy conservation and efficiency of use and conduciveness to further private investment in the energy sector.

Many are the lessons for Sri Lanka from projects of this type. Firstly, it shows how the combined financial resources of the major players in Sri Lanka's

private sector, if properly motivated, could be harnessed to undertake projects of this type. The major players are, presently, active only in the services sector with their industrial activity being confined to production of garments and rubber gloves for export. There seems to be a self-imposed taboo by these players on industrial activity, particularly, of a pioneering nature. They have, through years of spoon-feeding by inefficient governments, become habitually accustomed to asking for various concessions like interminable tax holidays and various other concessions.

They have the financial resources but severely lack in entrepreneurship and are wary in going into areas like power generation. Of course, one has to admit that the security situation in the country was at the root of their reluctance. But with prospects of peace getting brighter every passing day, should not some of the major players, who are themselves large scale electricity consumers, rethink their investment strategy, and refocus their attention away from the manufacture of garments and rubber gloves. ●

I wish to appeal to our private sector to please rise to the occasion and grab the opportunities thrown out by the Government for investment in infrastructure projects without blaming governments for the energy crisis.