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Norochcholai delay: loss of Rs. 38m to the economy every day

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At 90 rupees to the dollar, Norochcholai would generate electricity at Rs. 3.80 per unit. No oil power plant can produce electricity below Rs. 5.70 per unit. Norochcholai, when fully developed, will generate 20 million units of electricity every day. Each day the project is delayed, electricity customers will be asked to pay at least Rs. 1.90 extra per unit, to collect that additional 38 million rupees per day to pay for oil-based electricity.

A reliable supply of low-cost electricity is an essential need of a developing country. Sri Lanka needs about 5000 Megawatts of new electricity generating capacity over the next 30 years. Based on the present relative prices of coal, oil and gas, which have prevailed over the past 30 years, coal is the most economic source of primary energy to be used for bulk generation of electricity. Other forms of primary energy, such as biomass, wind and solar certainly have a role to play, but strictly as a supplement to the base load coal power plants.

The role of thermal power

The capability of the hydroelectric system in Sri Lanka is limited to about 3800 million units per year. Even if the catchment areas receive the highest rainfall, they can generate only 4700 million units per year.

The demand for electricity is expected to exceed 7000 million units in 2001, growing at 8% per year. Therefore, even if the rainfall is the highest ever, the country needs not less than 2300 million units of electricity this year from thermal power plants. Besides, in the future, all the growth too, should be supplied from new thermal power plants.

For example, in year 2004, the year the Norochcholai coal power plant was scheduled to be operational, thermal power plants should provide 4300 million units, if the rainfall is average. If the rainfall is very low, which is statistically very probable for year 2004, thermal power plants will have to provide 5400 million units.

The role of Norochcholai

After decades of economic studies and extensive field studies spanning over four years, Ceylon Electricity Board (CEB) confirmed in early 1999 that the Government-owned land located in the village of Norochcholai in the Kalpitiya Peninsula (Puttalam District) should be the site for the first coal-fired power plant in Sri Lanka. It does not mean there will



The Norochcholai site for 900 MW coal project as it appears today.

be no other coal power plants in Sri Lanka: Norochcholai will be the first, a Southern site probably the second, and an Eastern site probably the third. All these sites have to be developed within the next two decades.

The CEB design for the Norochcholai power plant, and its social and environment impacts management plan, were approved by the relevant Provincial and National Authorities. All designs and the financing package have been ready with the CEB since mid 1999.

Norochcholai was scheduled to provide 2000 million units of electricity in year 2004, increasing to 6000 million units by year 2010 when the power plant reaches its full capacity with all three generating units operational. This meant, in 2004 the power plant will provide 25% of Sri Lanka's electricity requirements.

Price stability of coal

From 2004, 25% of our electricity needs were planned to be provided by the coal power plant at Norochcholai, and that portion of our electricity supply will not be subject to sudden price increases as for oil. Norochcholai's electricity production will not be dependent on weather, as in the case of hydroelectric power plants.

All countries in the world, except those in the middle-east and some very small islands, use coal for electricity generation. This is because coal supplies are reliable, and the prices are stable. Coal

deliveries are structured as longer-term contracts, unlike for oil. India, China, Japan and USA use very large quantities of coal. Over 50% of electricity of each one of those countries is from coal plants. Malaysia, Thailand, Hong Kong, Indonesia and the Philippines are the fast-developing countries in the region using coal for electricity generation.

Prices of coal are around 30 to 38 US\$ per ton in Australia and South Africa, where coal for Norochcholai will come from. Transport and delivery costs to Norochcholai will make the total cost US\$47 per ton, delivered to Norochcholai.

A simple economic calculation

A kilogram of coal delivered to Norochcholai will cost 4.7 UScts. A kilo contains a minimum of 6000 kilo Calories or 25,092 kilo Joules. The power plant will be of 37.5% minimum efficiency. So, the fuel cost of generation will be $4.7 \times (3600/25092)/0.375 = 1.8$ UScts per unit of electricity.

Maintenance costs will be about 1.0 US cent per unit of electricity.

Norochcholai power plant will cost about 1000 US\$/kilowatt to install, but will have an economic life of at least 30 years, which is significantly longer than the life of most oil-burning power plants. When investments and financing charges are averaged-out, it works out to be about 1.4 UScts per unit of electricity.

So the total cost is $1.8 + 1.0 + 1.4 = 4.2$ UScts per

unit of electricity. At Rs. 90 to the US\$, this cost will be Rs. 3.80 for a unit of electricity.

In contrast, a litre of diesel oil priced at Rs. 24.50 can generate about 3.5 units of electricity. So, the fuel-only cost is Rs. 7 per unit of electricity. When the investment and maintenance costs are added, no diesel-burning power plant can generate electricity below Rs. 10 per unit of electricity. There are cheaper forms of oil around half the price of diesel, which makes the fuel cost to be around Rs. 3.50 per unit, but their higher investment and maintenance costs make them cost a total of at least Rs. 5.70 per unit, if not more.

CEB has been selling electricity for Rs. 4.75 (national average), until the recent announcement of the 25% tariff increase in the form of a fuel surcharge, applicable from March 1st. This means coal is the only proven source of primary energy that can provide electricity BELOW the present selling price. Any other proven method of bulk electricity generation, such as oil or gas, will all be ABOVE the present selling price of electricity.

Electricity prices in 2004

With the CEB unable to proceed with Norochcholai, in spite of all environmental approvals and financing being ready since 1999, it is inevitable that all the electricity that were to be generated with coal from 2004 onwards, will now have to be generated using some form of oil. The nation must understand that there is no time to shift the site. Other sites, if at all available, should be studied immediately, not to replace Norochcholai but to locate the second coal power plant, after Norochcholai.

It is almost certain that even if CEB is allowed to proceed with Norochcholai even today, it will not be ready to provide that 2000 million units of electricity in year 2004. Undoubtedly, that electricity will have to be generated using oil, at an extra cost of not less than Rs. 1.90, but typically Rs. 8 above the cost of electricity produced from Norochcholai.

The price of electricity in 2004, will therefore reflect the absence of Norochcholai. This rapid increase in the price of electricity can be partially arrested by year 2005, if CEB is allowed to proceed with Norochcholai now. The increases can be fully arrested, and the prices of electricity stabilised in the long-term, when Norochcholai is fully developed by year 2010. Now for that, the green light to proceed should be given now, today. Not tomorrow, because by tomorrow, our economy would have lost a minimum of Rs. 38 million, precisely owing to the delay of Norochcholai.

And, the electricity customers will surely be asked to foot the bill.