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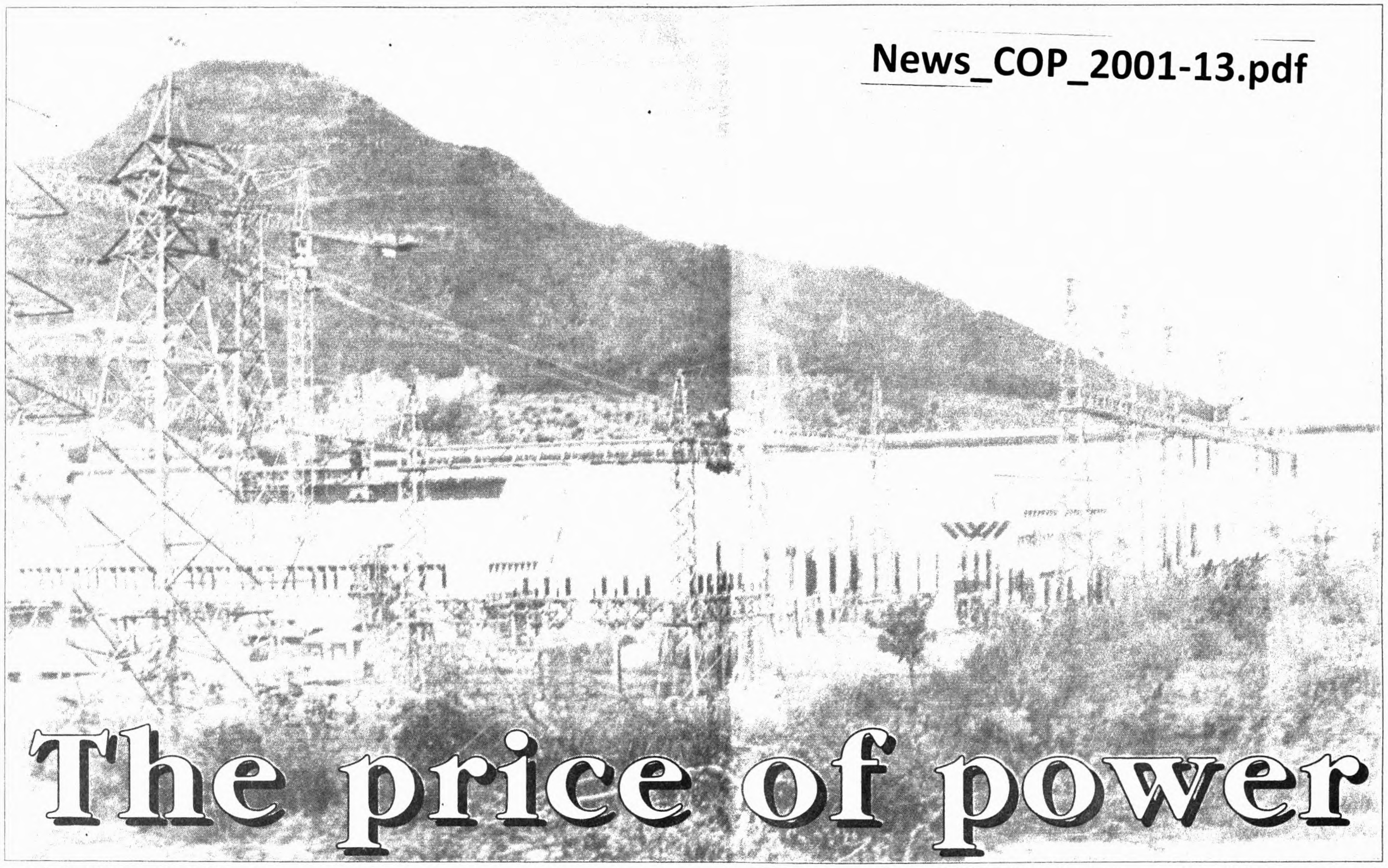
Coal or Dendro thermal-can electricity be both eco-friendly and affordable?

by JAYANTHI LIYANAGE



The price of power

Infuriated sparks between environmental watch-guards and Central Electricity Board (CEB) seem to have fizzled out. CEB has finally stilled the suspense by calling for private sector investment to set up three phased-out power plants - coal, oil or gas - whichever best feed the hungry beast that is the nation's electricity demand.

The overwhelming magnitude of the country's electricity-generation shortfall is too deep a reality which crusaders and resistors of conflicting causes cannot ignore in the unrelenting chase of "narrower agendas". All the while consumers stumble with a double burden - soaring cost of electricity and power failures. The much-maligned CEB blames everyone but themselves for the energy mess. Environmentalists are, of course the biggest scapegoat.

Yet, could the present power crisis be solely saddled on to the much-chipped shoulder of the environment camp?

Dr. Tilak Siyambalapitiya, Resource Management Associates (Pvt) Ltd., Consultant on Energy, formerly at CEB, felt that undue emphasis on environmental concerns beyond the legitimate claims of the country's environmental laws had a hand in the crisis.

"Upper Kotmale hydro-electric project which should have produced 150 KW of electricity today is six years behind schedule," Dr. Siyambalapitiya said. "The reason is the inability of our environmentalists, particularly NGOs, and CEB to come to a settlement faster. If we had Upper Kotmale, your power cut would have been one hour less. That is the discomfort we face due to the environmental debate."

Environmental clearance for the project, designed in 1995, dragged on for two years due to protests over impact on waterfalls. Another four years passed before the matter reached a concord.

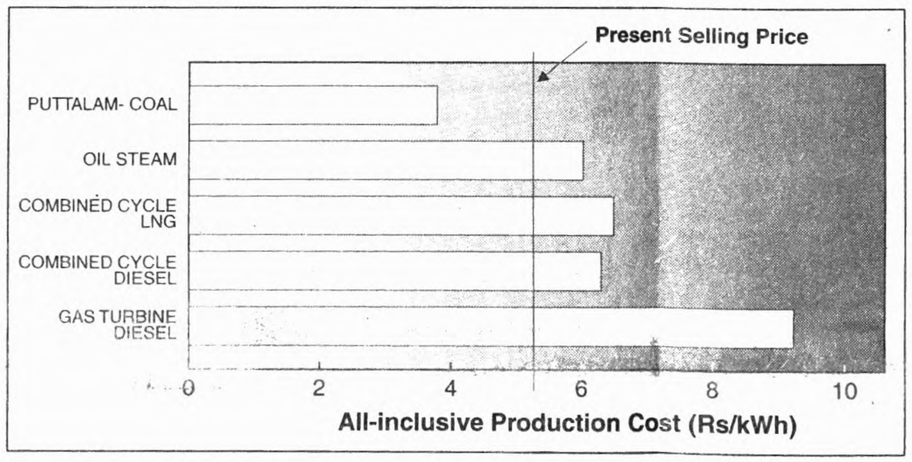
"Those who don't want waterfalls to be disturbed don't say anything when oil-fired power plants generate electricity emitting thousands of tons of sulphur to our air and at prices ranging from Rs.6/- to 12 per unit," Dr. Siyambalapitiya said. "Upper Kotmale would have produced electricity at Rs. 1.60 per unit. Because we cannot come to a settlement, there is both financial and environmental damage."

Environmentalists are not alone in grabbing a hop on the stallers' bandwaggon. "Anuradhapura oil-fired power plant was in par with legal environmental standards when rumours spread that it would kill the Sacred Bo Tree, being only 1 KM away. The correct distance is 10 KM," he said. "It became a political issue. The government cancelled the project and CEB was left with a huge damage bill to the private investor."

"The plant would have generated 20 MW electricity by February 2002," Dr. Siyambalapitiya said. "You can shut down a shoe-factory and import shoes. You shut down a power plant and you get power cuts as you can't import electricity."

He feels that the throbbing core of the crisis is CEB's inability to implement major power-generation projects. "CEB has a 15-year plan which clearly explains what power plants should be built, by what time, where, using what fuel with two prime objectives."

One, to ensure the availability of electricity even in lowest rainfall conditions. The other, to provide it at the lowest cost. "But once a project is specified, CEB cannot implement it," Dr. Siyambalapitiya said. "Matara 300 MW coal power plant was cancelled by a previous government without an alternative. That's the power shortage we have today. Clearance for Norochcholai was ready in 1998. But due to political implications, the government cancelled it. This will be reason for power crisis in 2004."



Note: Exchange rate 90 Rs./US$, Reference oil price US$28 per barrel, LNG terminal costs not included, all costs are life-cycle costs at a discount rate of 10%. To calculate the selling price, the production cost must be increased by 20% to account for network losses, and about Rs. 2 per kwh should be added to account for transmission and distribution costs, and overheads.

"We should build a coal power plant. Coal is the only thermal generating technology which can produce electricity below the current selling price of Rs. 5.60 per unit, at Rs. 3.80. The country needs five large power plants using gas or oil or coal whichever is economical," Dr. Siyambalapitiya said. "Also, we should immediately investigate a site for a second coal power plant, strategically in the South.

Hambantota proposed port and this plant have to go together since coal has to be imported."

Echoing sentiments that had the dialogue between environmentalists and CEB been constructive, a crisis would not have descended on us, Dr. Asoka N. Abayagunawardena, Program Co-Ordinator, Energy Forum, said, "CEB does not have a participatory approach to win over people, while environmentalists oppose and do not come up with a viable solution."

Brushing aside the popular belief in coal as a cheap source of energy for Sri Lanka, Dr. Abayagunawardena said, "All our foreign currency earned through the export of tea, rubber and coconut would be spent in importing coal," he said. "For long term options, we should look at our own resources though as CEB says it's currently not economical."

Dr. Abayagunawardena is very specific in categorising energy sources for the country. "We see oil power plants as a short-term option while coal, natural gas and the still-untapped 800 MW of hydro power potential can be used on medium term. But for long term, we should rely on local resources such as dendro-wood, wind and wave energy."

"What is most economical depends on our formula. In calculating expenses CEB has not taken into account future devaluation and carbon trading," he said.

Ten years hence, devaluation would make our own hydro-potential much cheaper than the continuous import of coal. "The global trend is towards controlling climatic change by reducing carbon dioxide emission and replacing coal with other renewables."

"Developed countries which cannot reduce their own emission levels will buy our reduced levels achieved through resources which do not emit carbon dioxide. If we use coal, it will have a negative effect on carbon trading," he said.

About 40% Of Sri Lankans do not have electricity. "The option to supply their demand is not the expensive procedure of extending the grid," Dr. Abayagunawardena said. "Solar, dendro-wood or mini-hydro schemes would be the answer." Currently, about 3,000 households benefit from around 100 privately-owned mini hydros spread out in remote Sri Lanka.

Vidya Jothi Dr. Ray Wijewardene enthused on taking the nation to an era of green energy and economy based on dendro-wood plantations.

"No generation of energy in the future could be without considering the environmental aspect," he emphasised.

But the environmental cost is minor compared to the financial cost. "Do you hear anybody talking about finances?" Dr. Wijewardene questioned. "Exchange rates are rising.

We have no exchange payment to import coal or oil. We are like beggars expecting loans and free-gifts. Who will pay for it? The future generation. It is absolutely morally wrong!"

Dr. Wijewardene's new way is dendro farming through which one third of the island's 1.7 million hectares of scrub and 'hena' land is capable of annually generating 10,000 Giga Watts of electricity, a ninefold increase in forest cover and employment to one twentieth of our population.

Dr. Ranjith Cabraal, Vice President, CEB felt that vacillating decisions by the government as well as environmental activism led to the crisis. "Japanese soft loan for the coal power plant has now lapsed," he said. "It's renegotiable but will take another 2-3 years."

"The present tariff is heavily subsidised which we cannot continue unless the government provides the subsidy. CEB has no finances," Dr. Cabraal said. "We are searching for funds for Upper Kotmale.

Dendro-wood and other local options are too visionary and not possible on mass scale. But we are prepared to accept feasible proposals and not fairy tales!"

Finally, the low and middle-income consumer will ransack high heavens to foot the nation's electricity bill.

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