

28/02/01 Daily News Energy Generation and Carbon Trading - part 2

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(Continued from yesterday)

As seen from the situation in USA described in the previous section, the emission of pollutants from power plants increases the risk of people living within the air shed falling sick with respiratory diseases and taking treatment. In Sri Lanka, the extra cost of health care is borne by the Government. This cost should be included in the costing of power generation for levelised comparison with other plants that do not generate pollution. This cost, however, has not been quantified, but for comparison purpose, we may assume a rough figure of US cts 0.5 per kWh. This increases the unit cost to US cts 4.50 - 6.20 per kWh and shows that coal power is not all that cheap.

There had been a few international firms who have approached the Ministry offering NG plants, which could generate electricity at prices competitive with coal plants, if not below the high range of values given above. If the Ministry or the CEB does not want to consider unsolicited proposals as a matter of policy, the next best thing to do is to invite proposals internationally for the supply of a NG plant along with setting up of the necessary infrastructure facilities to import LNG. The bid document should include a provision to quote a price for trading CO₂ saved from the project under CDM, which will reduce the Sri Lanka's investment on the project. This would be a far more attractive option than seeking to set up a coal power plant either at Norochcholai or elsewhere, both in terms of money

and time. If such offers have indeed been received, it is a clear indication that coal is not the cheapest fuel for generating electricity even in Sri Lanka.

Environmental concerns

The main objection for coal plant is its adverse environmental impact, particularly the emissions and solid waste. The CEB and its consultants have been saying, in response to reservations expressed in my previous articles, that the proposed coal power plant will comply with all the environmental requirements, and that the best equipment will be installed to control its emissions. The people would like to believe this, but are hesitant to do so, in view of what is happening just across the lagoon. The cement plant there has been emitting cement dust over several square kilometers of area throughout the last few decades, without the concern of anyone.

When the plant was taken over by a new management a few years ago, it was announced in print media that a new electrostatic precipitator would be installed. People would like to know whether there is no cement dust coming out of the stacks now. It would also be interesting to know, in the event of a breakdown of the high voltage power supply feeding the electrostatic precipitator, whether the plant will be shut down until it is repaired, or whether the plant will continue to operate releasing 230 t of fly ash per day into air.

Several countries, particularly those having their own coal deposits, would want to use coal power for many more decades. With the pressure building against the use of coal power, these countries have

been developing clean coal technologies in the recent past, and a few have shown promise for commercial production in the near future. One such technology is the Integrated Gasification Combined Cycle (IGCC) plant. Coal is converted to a gas, which is purified to remove the particulates, ash and sulphur and fed to a CCGT, where electricity is generated with an efficiency close to that of a NG fired CCGT. The USA Department of Energy forecasts that by the year 2010, the system efficiency of these plants will increase up to 55 percent, reduce emissions to less than 1/10 of the standards for SO₂, NO_x, and particulates, and achieve a capital cost of less than \$1,000 per kilowatt with a cost of electricity 80-90 percent of that produced by a new conventional coal power plant. At present there are several plants in operation in the USA and Europe, and a feasibility study for another in Japan is underway. Another is being planned in China with ADB funding. It is estimated that commercial plants using this technology will become available by 2005.

These plants have the versatility to be able to add on to any CCGT plant operating with diesel or NG. In the event the proposed NG-fired CCGT plants are found to be too expensive to operate with NG later in their life-time, and if, coal gasification plants are available commercially by that time, the CCGT plants could be converted to operate on these gasification plants. Unlike the pulverised combustion system, gasification plants emit much less pollutants including carbon dioxide. Hence, this is also a potential option for seeking CDM assistance to meet any extra costs.

The Ministry has the responsibility to provide clean energy to meet the needs of the country in all sectors, taking into consideration new developments in energy generation technology and environmental concerns, both local and global. The CEB has to honour the Government decision to drop the Norochcholai project and start looking for thermal plants operating with alternative clean fuels or technologies. Considering the many uncertainties in costing electricity, it cannot be said definitely that coal is the cheapest fuel for electricity. The Ministry should consider alternative proposals received, taking advantage of the new funding mechanisms available under the Climate Change Convention, to bring down the costs further.

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