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Consider the ocean as energy source, urges UWI prof

TANEISHA DAVIDSON, Observer staff reporter
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Professor Al Binger, director of the University of the West Indies Centre for Environment and Development (UWICED) is urging the government to consider the sea as an alternative source of energy, using Ocean Thermal Energy Conversion (OTEC) systems.

OTEC is energy technology that converts solar radiation to electric power.

WRIGHT... says system studied and found to be uneconomical

Binger proposed it as a much more viable option than natural gas.

"Here is a technology that is ripe. It fits every part of Jamaica's development aspirations," said Binger Wednesday during a press conference at the Ministry of Land and Environment to discuss the outcome of sustainable development conferences held recently in Mauritius and Japan.

"Everyday, the sun gives us the equivalent of 20,000 to 30,000 barrels of oil. Every hectare of the tropical ocean... if we were to capture 0.001 per cent of that, we wouldn't have to pay anybody one nickel for energy," said Binger.



BINGER... we wouldn't have to pay anyone one nickel for energy

But last night, Jamaica's chief energy planner Dr Raymond Wright, asked for a comment, said the OTEC system was evaluated in 1980s and found to be uneconomical.

"We have not been able to get prices to be competitive," Wright, the group managing director of the Petroleum

editorial cartoon



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- Good
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Corporation of Jamaica (PCJ), told the Observer.

In 2002, Wright had written on the subject in an article titled "Will Ocean Thermal Energy Conversion fulfill its promise?" pointing out then that OTEC had to thrive alongside competitive new technologies such as fuel cells. While he noted that the OTEC was demonstrated experimentally to be sound technology for producing net electric power, Wright said certain designs and uncertainties hinder its commercial development.

For example: "The installation of a cold water pipeline to pump the water from the ocean, represents a technical challenge and - depending on the coastal underwater topography, length and diameter of pipe-line, required flow rates and pumping power needed - it can be the most expensive component of an OTEC system," he wrote.

"There are some technical and logistical problems in laying the pipeline and there are also high cost in servicing and maintaining the pipeline over time."

OTEC systems use the ocean's natural thermal gradient - which refers to the temperatures at different sea levels - to drive a power-producing cycle.

As long as the temperature between the warm surface water and the cold deep water differs by about 20°C (36°F), an OTEC system can produce a significant amount of power.

"Warm water goes in, changes the ammonia to liquid, which drives a turbine that runs a generator," Binger said, breaking down the complex process.

Additionally, Binger said the OTEC system would produce energy at cheap prices and would offer options for producing steel locally.

"This would mean we would no longer have to export our aluminum and our bauxite as raw material; we can actually convert them into finished products."

Professor Binger said the cold, deep seawater used in the OTEC process is also rich in nutrients, and it can be used to culture both marine organisms and plant life as well as produce desalinated water for industrial, agricultural, and residential uses.

"Building an OTEC plant for 10 megawatts gives about three million gallons per day of fresh water," he said.

While he noted that constructing the plant would cost almost three times the amount to build a regular power plant, Professor Binger said the cost would be offset by the fact that the OTEC does not need fuel to operate.

"This is a plant that does not take any fuel to run," he said. "A 10 MW diesel facility will cost about US\$25 million for thermal facility. If you get the same megawatt in OTEC it is going to cost you US\$60 million to US\$80 million. Annually, all the money that you would send to Trinidad or Venezuela you can use to service the OTEC plant."

In addition, Binger said some Caribbean countries have

indicated interest in the technology.

"A group headed by the Prime Minister of St Kitts have responded to the move towards OTEC," he said.

Wright has said however that commercial OTEC plants would have some negative effects on the marine environment as construction facilities may disrupt the seabed, temporarily destroying marine ecosystem.

He said too that maintenance could have implications for bio-fouling - the undesirable accumulation of microorganisms, plants and animals on artificial surfaces - increasing levels of toxic substances.

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