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Chiron project: Reform of methane from a cold plasma reactor with hydrogen production for desalination and energy cogeneration

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The increasing exploitation of water resources in recent decades has resulted in situations of water stress worldwide. Thus, the phenomena of reduced water availability in Brazil have caused a reduction of hydroelectric resources which presents itself as one of the main problems for power generation in Brazil. Moreover, the Brazilian electric system is not warranted against shortages, even if the principles of the new energy model are followed. To get an idea of the problem, if the production of thermal energy is removed, the risk of rationing could rise from 10% to 27% in 2013, according to IBGE. The situation may actually get worse if reducing the supply of Bolivian gas happens which would be especially worrisome for the South and Southeast regions. In order to reduce the risks of a general power outage, the CHIRON Project emerged, supported by two social projects, one of Brazilian's federal government and the other of Bahia state's Government, both aiming the rational and intelligent use of saline wastewater from treatment of artesian well water by reverse osmosis which may or may not have a high content of other dissolved solutes and also with the purpose of generating energy through of a cold plasma reactor for pyrolysis of methane and or any other hydrocarbon using a modular and interchangeable framework for generating black carbon and hydrogen which feed the reactor of water desalination and the turbo generator of energy without affecting the environment and having as byproducts of the process the generation of clean energy and the production of H_2 and C, rock salt and water in two ways: Drinking water suitable for human consumption and demineralized, deionized and industrial water.

Biography

Ailton de Silveira Junior, holds Master's in Industrial Engineering - Business Management from the Federal University of Bahia (2005);Degree in Mechanic Engineering from the Federal University of Bahia (1990). He has extensive experience in the areas of Mechanic Engineering, Hydrogen, Bioenergy, Energy generated, Process automation, Sustainable developmentand Construction of mechanical machines and automobiles. He is the Deputy Coordinator of the APOLLO research group, developing research projects in the areas of technology, robotics, organizational strategies, clean energy and sustainable development.

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