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Prometheus project: Using a plasma reactor for reforming gas of bio digesters with carbon sequestration and hydrogen use for treatment of sewage and cogeneration of energy

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Global warming derived from burning fossil fuels, lance in the atmosphere, billions of tons of CO, CO₂, NO₂, NO, CH₄ and other greenhouse. Altering the climate of the planet and compromising the rivers and sea's due the melting ice caps, severe droughts and big storms. Thus, because of these climate changes and impacts of greenhouse gases associated with the instability of fossil fuel prices, reduced reserves and the reduction of areas for the creation of large hydroelectric plants have contributed with an increased concern with the environment, energy and production. Therefore, becomes a premise in current projects developing new sources of clean energy without generating greenhouse gases. These conditions remind also that the global climate is changing with a general warming trend which may cause problems of famine, drought and floods in various parts of the globe. Such phenomena predicted in climate projections, a decade ago and were considering such critical changes in the global climate for the next fifty years have shown that these are happening right now. Changes in environmental policies are being implemented in haste in the world and those who are not yet alarmed by the magnitude of this problem tend to suffer the consequences of his later efforts. Seasonal effects resulting from global warming and ice ages are common on the planet but do not occur in human scale, however, humanity provides the necessary formula for changes that would occur over hundreds of years in one century. It is no longer a matter of "if" and "when" is the question of how one can reverse or ameliorate the effects of human intervention in order to slow down Earth's climate changes and disasters that potentially represent that affect us as a whole. With these bases Prometheus project is builder for building completely carbon free plants without producing waste to the environment and bothering to retrieve it. Based on this principle is that the project was based on a systematic use of wastewater in order to recover the degraded water, avoiding the generation of methane into the atmosphere and offset the emission of gases. The Prometheus project proposes generating energy and treat contaminated water thus reducing the constant strain on the environment and allowing this to recover from human interference by providing a rational and intelligent use of sewage coming from the anaerobic treatment basins which may or may not a have high content of other dissolved solutes for the purpose of energy production through a plasma reactor for pyrolysis of methane obtained from anaerobic bio-digesters of the chamber using an interchangeable modular structure for generation of colloidal carbon and hydrogen which feeds the pyrolysis reactor to treatment of wastewater, addition of power generation without affecting the environment and having as byproducts of the process generating clean energy, the production of pure H₂ and C, rock wool and water.

Biography

André Pedral Sampaio de Sena, holds PhD in Industrial Engineering - Organizational Intelligence from the Federal University of Santa Catarina (2008), Master in Industrial Engineering - Business Management from the Federal University of Santa Catarina (2002), Computer Specialist at Educational Center for Education Graduate Olga Metting (1999), Degree in Electrical Engineering from the Federal University of Bahia (1986). He has extensive experience in the areas of Information Technology, Process Engineering, Hydrogen, Bioenergy, Energy Generated, Process Automation, Sustainable Development, Audit and Judicial Skill. He is a winner of the South Regional - Santander and Winner of 4th Prize Santander Science and Innovation with the project OPTIMUS: Creating a method for assessing the strategic management informed by MCDA-C; Coordinates of the APOLLO research group, developing research projects in the areas of technology, robotics, organizational strategies, clean energy and sustainable development. He is the creator, researcher and coordinator of the Engineering courses of the Faculty of Technology of Valença / Ba - FACTIVA. He is the Founder of FACTIVA's Technology Center. He is the Professor and researcher at the Federal University of Bahia - UFBA. Coordinator and researcher of the research groups: NDTA - FACTIVA: Advanced Technology Development Center Factiva; And GPAPOLLO - UFBA: Apollo Research Group - UFBA.

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