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Compare the ability to generate electricity by Azolla fern's biogas in different systems of small scale CHP

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Azolla is non-native aquatic plants that introduced into the Anzali wetlands, Azolla is recognized as Environmental threat in Anzali Wetland. We produced biogas from Azolla biomass via supercritical water gasification and as a result we achieved to produce biogas that contained 30% hydrogen. CHP is the sequential or simultaneous generation of multiple forms of useful energy (usually mechanical and thermal) in a single, integrated system. We simulated and optimized different units of CHP such as gas turbine, internal combustion, sterling, etc., and use biogas of Azolla fern as feed to investigate Azolla ability for power generation, through Aspen Plus. We achieved 1 MW to 2.25 MW electricity from these small scale power plants. Consequently, the results of our study depicted that this fern which is known as threat, can be used as an alternative biomass feedstock for efficient power generation and indicates that biogas from Azolla biomass had excellent and considerable ability in order to generate power and less NO_x emission.

Biography

Alireza Mehrdadfar has completed his Master's from Islamic Azad University. He is the Director of Energy Section in FATH Company, a premier Bioenergy organization.

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