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SUSTAINABLE ENERGY: HYDROGEN, ETHANOL AND FUEL CELLS

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The sustainability concept of the present economic development model is driving the actions to leverage the integration of the economic development with the improvement of social-environmental relationships, which could be expressed as “produces more and better with less”, preserving resources and environmental quality. One important element to reduce the impact in nature is the energy generation. The need for more efficient sources of energy is evident, as the world relies on fossil fuel sources that become scarcer and expensive. Furthermore, imposes the use of clean fuels, like hydrogen and renewable primary fuels in large scale. The fuel cells technology have shown to be an interesting and very promising alternative, among others, to solve the problem of generating clean energy with high efficiency, using hydrogen, natural gas and ethanol. Hydrogen production from ethanol is an attractive technique, due to it renewable source, allowing clean energy generation. In this article, we identify the necessary infra-structure to lead Brazil as a global player in the Hydrogen Economy. The costs of natural gas and ethanol as “carriers” were identified, pointing out weaknesses and strongest points of these primary fuels.

Key words: sustainable development, sustainable energy, fuel cells, natural gas, ethanol.