

ASSESSING THE BIOFUEL – TRANSPORT NEXUS. THE CASE OF THE SUGAR INDUSTRY IN CUBA

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ABSTRACT

Cuba currently faces a limited availability of transportation to support the development needs of the country. Transport availability is mostly limited because of fuel shortage. Moreover, Cuba has an important production of sugarcane, with a significant potential to further increase its production. Using sugarcane-based bioethanol is a significant opportunity for sugarcane producer countries. There are different raw materials available in the sugar industry to produce bioethanol. Therefore, there are different scenarios to increase the production of sugarcane and energy cane, to increase bioethanol production. In this study, two scenarios of sugarcane and energy cane production were considered, from which there are eight possible scenarios of bioethanol production. These bioethanol production scenarios were matched with three transport scenarios, including a business-as-usual scenario, a scenario considering the use of bioethanol blends in standard gasoline and diesel engines, and the introduction of vehicles running on high ethanol blends or pure bioethanol (i.e. flexible fuel vehicles, and ethanol buses and trucks). In total, the production of sugarcane-based bioethanol might support from 4 to 58% of the yearly demand for transport energy in the transport scenarios. Additionally, the use of bioethanol as a transport fuel can potentially reduce transport-related greenhouse gas emissions by an estimated 3–30%.

KEYWORDS

Bioethanol, Biofuels, Sugar industry, Transport