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RENEWABLE ENERGIES FOR AFRICA: EFFECTIVE VALORIZATION OF AGRI-FOOD WASTES

Tuna Technical Senior High School

REFFECT AFRICA focuses on the on-site and real-time demonstration of an innovative system for improved gasification of agricultural waste.

One of the direct impacts will take place in Tuna Technical Senior High School (TUSEC) in Ghana. The biomass gasification plant will be installed at a school and the feedstock for the demonstrator will be farm waste generated from local farms. The main crop residues include maize residues, peanut shells, sorghum husks, and other available wastes.

5 Year project

Biomass valorization from crops of the region

Off-grid & On-grid application

Ghana

Tuna (Ghana)

Tuna is a typical farming community in the northern part of Ghana and as a result, a lot of the inhabitants work in agriculture, cultivating mainly grains, legumes, tubers, and some cash crops.

The demonstrator at TUSEC in Tuna is designed with a technological topology capable of operating off-grid, to provide supply during the first steps of the project and on-grid when the connection to the grid is achieved, which is also in accordance with the philosophy pursued by this demonstrator.

Tuna, Sawla Tuna Kalba District, Ghana.

The biomass gasification plant will have an electric power generated of 20 kW complemented with a solar Photovoltaic generation system with a generation capacity of 20 kWp. By the nature of the design of the TUSEC demonstrator, the main product to be generated includes electricity, heat biochar, and manure.

The benefit

By installing the demonstrator, farmers will gather the agricultural waste as feedstock for the demonstrator at a price that will provide them supplementary income. Also, the electricity and the heat generated by the demonstrator will reduce the school bills.