

The Production of Densified RDF from MSW for Use as Co-fuel in Biomass Power Plant

Project Objective

The objectives of the project are:

- To use high calorific portion of municipal solid waste (MSW) in Thailand as fuel for electricity generation;
- To solve the problems of waste management in addition to conserve energy, reduce environmental impacts and greenhouse gas emissions;
- To solve the problem of high fuel cost and fuel shortage for electricity generation (especially for biomass power plant) and other industries;
- To reduce the use and import of fossil fuel.

Description

Municipal solid waste (MSW) is one of the wastes high potential to be used as fuel for energy production due to extremely large quantity with low cost. The production of densified refuse-derived-fuel (RDF) from MSW is an interesting alternative to the use of high calorific portion of MSW as fuel for energy production. It can be used as main fuel for electricity production, co-fuel for biomass power plant or as substitute fuel in industrial boiler. This helps to solve the problem of waste management and conserve energy, while reducing environmental impacts and greenhouse gas (GHG) emissions.

For this pilot project, MSW disposal site will be selected and the required engineering and planning processes will be carried out. The pilot plant to produce approximately 5 tons per day of densified RDF from high calorific portion of MSW (e.g. paper/waste plastic/cardboard) will be installed. The practical experiences and challenges of processing the MSW briquettes or pellet will be reported (up to the specification for use in BFB required). The produced densified RDF will be used as co-fuel in BFB boiler to produce electricity. The combustion

Project Highlights

Project ID	: 3-T-101
Country	: Thailand
Lead Partner	: STFE Co., Ltd.
Partners	: Wiltrain Consulting Oy, Biomass Power Co., Ltd., Prince of Songkla University
Total Project Cost	: € 205,000
EEP Financing (% to total project cost)	: € 155,000 (75%)
Technical Focus	: Waste-to-Energy
Activity	: Pilot Project
Duration	: 13 months

behaviour of the densified RDF in different fuel mixtures and the operational aspects in continuous electricity production (e.g. increased need for boiler cleaning) will also be reported.

Energy produced from MSW will be beneficial to ordinary people and the country, as it helps to reduce environmental impacts, conserve energy and reduce the use and import of fossil fuel. The use of RDF as fuel for electricity generation and industrial boiler helps the entrepreneurs to reduce their cost of fuel and solve the problem of fuel supply. This project is sustainable as it is a waste-to-energy project that improves the quality of life of people in the community, conserve energy and reduce environmental impacts.

We consider this project to be important because if successful – it could be replicated and locally modified in every EEP Mekong country. It reduces the import of fossil fuels and greenhouse gas emissions and helps waste management in small treatment plants.

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Relevance to Country's Energy and Environment Policies

The project will promote the use of refuse derived fuel (RDF) for electricity generation which is in-line with the Thai government's policy to increase the share of renewable energy from 15.6% in 2011 to 19.1% and 20.3% in 2016 and 2022 respectively.

The project has positive impact on the environment as it reduces solid waste disposal problems and greenhouse gas emissions



Densified RDF (pellet)
Photo courtesy: Chamco.net



Municipal solid waste in Thailand Photo courtesy: Toptenthailand.com

Innovation and Knowledge Transfer

This project is innovative as there are no entrepreneurs in Thailand producing densified RDF from MSW for electricity generation/industrial boiler commercially. It will be a learning centre and the technology can be disseminated throughout the country.

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