

Feasibility Studies with the Aim of Developing
a Joint Crediting Mechanism FY2013

Studies for Project Development and Organization

Study for Energy Recovery Project from Organic Waste

New Energy and Industrial Technology Development Organization (NEDO)
PEAR Carbon Offset Initiative Co., Ltd.

“Study for Energy Recovery Project from Organic Waste” (Studies for Project Development and Organization)

Proposed by : PEAR Carbon Offset Initiative Co., Ltd.

Almost organic wastes have been disposed by open dumping in Vietnam. As organic wastes are carbon free energy, they can be utilized as substitute fuel for fossil fuels with using Aono's biomass system. Promoting heat recovery from combustion of organic wastes in developing countries, which produce steam and electricity energy in industrial plans, will realize a large amount of emission reduction potential.

Aono's biomass system, which perfect environment standards of WHO and ASEAN, never release any waste, and no auxiliary burner is required for low calorie and high water-content organic waste, will be supposed and emission reductions will be set up.

Survey Items

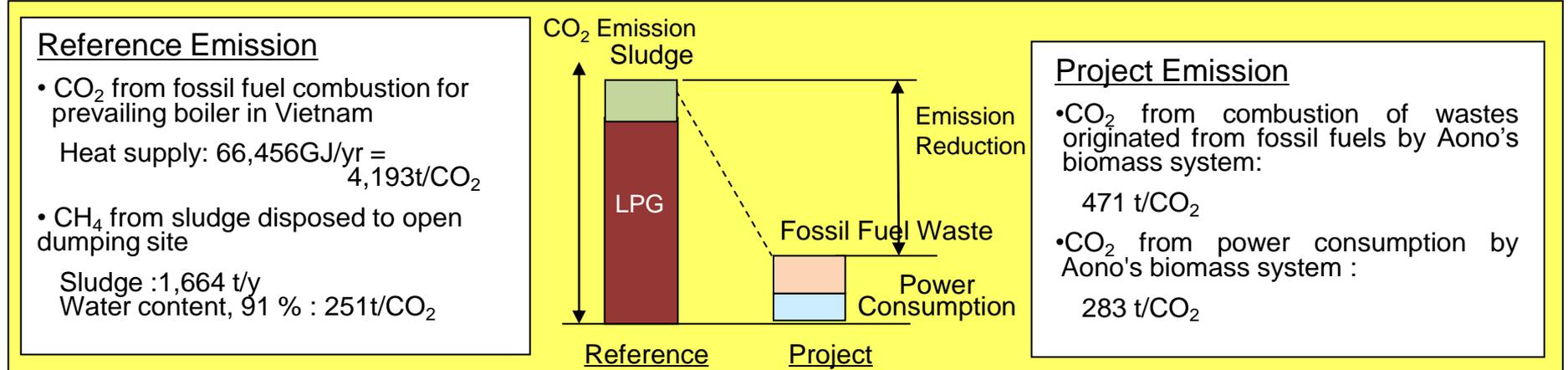
- ① FS for Aono's biomass system, and finance and investment environment arrangement necessary for project realization;
- ② Identification of MRV methodology for the project;
- ③ Estimation of emission reduction by the methodology.

Partner / Site

- Vietnam
Aono Shokai Vietnam CO. LTD.
Nitori Furniture Vietnam EPE
 - Saigon City
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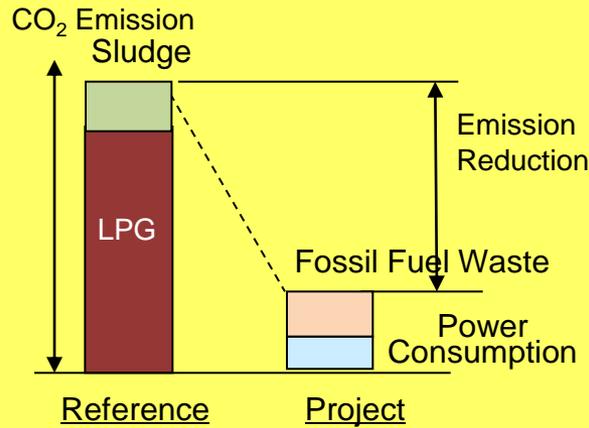
Estimated Reduction amount

Reduction amount ; 3,690 tCO2/y



Reference Emission

- CO₂ from fossil fuel combustion for prevailing boiler in Vietnam
Heat supply: 66,456GJ/yr = 4,193t/CO₂
- CH₄ from sludge disposed to open dumping site
Sludge :1,664 t/y
Water content, 91 % : 251t/CO₂



Project Emission

- CO₂ from combustion of wastes originated from fossil fuels by Aono's biomass system:
471 t/CO₂
- CO₂ from power consumption by Aono's biomass system :
283 t/CO₂

Summary of Introduced Technology

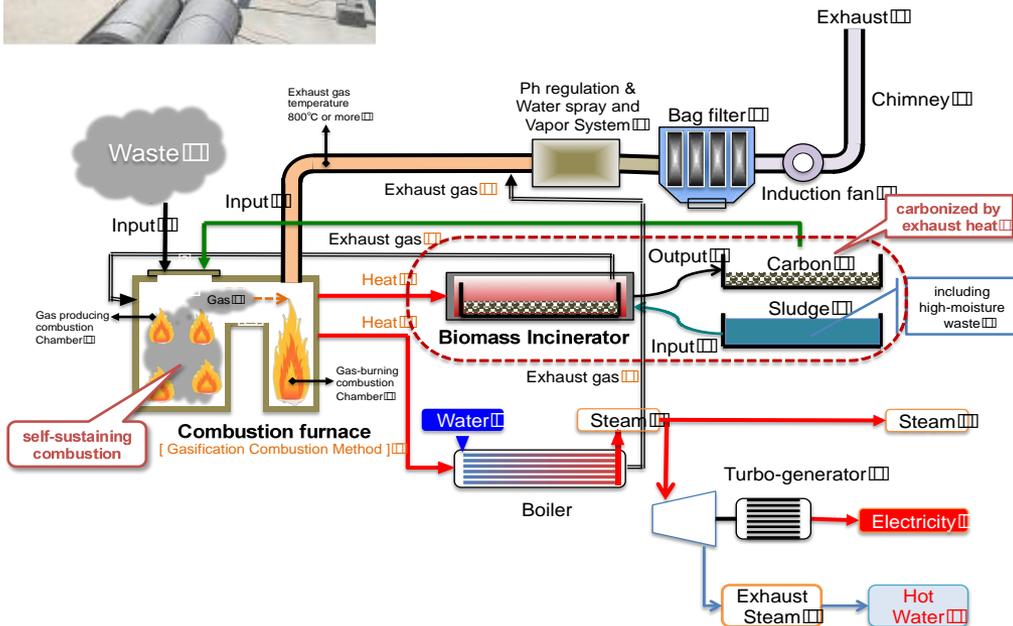
Aono's Biomass System



(Explanation)

Aono's biomass system utilize organic wastes as substitute fuels for fossil fuels in order to recover heat energy. Heat energy is used to carbonize high water-content wastes and to produce steam being utilized for power generation and/or for operating the factory. The system consists of Incinerator, exhaust heat boiler, carbonization chamber and flue gas cooling unit (see Figure).

One of the most remarkable features of combustion furnace (see Picture) is the gasification combustion; gasifying the wastes in the first chamber and then incinerating these gases in the second chamber. Thus, this method is efficient to burn the low calorie content wastes completely at high-temperature. The temperature of the chamber meets the environmental criteria of WHO (800°C) and Vietnam (1,050°C) for waste management, and render contaminated materials such as dioxin harmless. Although additional fuel combustion is required to keep high temperature of chamber in the case of normal incinerator, Aono's system requires no additional fuel combustion.



Carbonization chamber is a unit to carbonize high water-content wastes (sludge) having up to 90% moisture. The unit carbonize wastes discharged from the factory (wood debris, paper, food residue and sludge, et al.) in order to utilize them as fuels for the incinerator. Flue gas should be cooled below 300 °C before entering into bag filter. Flue gas cooling unit adopts water circulation technology, thus no water is discharged at all. Muddy water produced during filtration process is treated by high molecular coagulating sedimentation to separate solid substances in order to combust them in the incinerator.