



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

CASE STUDY

REPLACEMENT OF LOW EFFICIENCY COAL FIRED BOILER WITH HIGH EFFICIENCY BIOMASS FIRED BOILER at Trang An 2 Confectionery Joint Stock Company - Nghe An

OVERVIEW

ANNUAL ENERGY CONSUMPTION REDUCTIONS

17,867
GJ/YEAR

ANNUAL COST

SAVINGS

1,649
MILLION VND/YEAR

ANNUAL GHG EMISSION

REDUCTIONS

EQUIVALENT TO 8,699
TONS/YEAR



ABOUT TRANG AN 2 CONFECTIONERY JOINT STOCK COMPANY - NGHE AN

Trang An 2 Confectionery Joint Stock Company is one of four companies of Trang An Confectionery Group. In parallel with product development activities, the Company always pays attention to environmental protection and energy saving solutions, especially in the operation of the boiler system. In May 2018, the Company cooperated with experts of the GEF funded Project “**Promotion of Energy Efficient Industrial Boiler Adoption and Operating Practices in Vietnam**” jointly implemented by the Ministry of Industry and Trade (MOIT) and the United Nations Industrial Development Organization (UNIDO) to conduct a boiler efficiency assessment and study solutions on boiler efficiency improvement in order to save energy consumption. After consulting the boiler efficiency assessment report made by the consultant team, Trang An 2 Company decided to replace the chain grate coal fired boiler with fluidized bed biomass fired boiler.

THE FINDINGS OF THE ASSESSMENT

THE 7 TPH CHAIN GRATE COAL FIRED BOILER OPERATES AT LOW LOAD (about 50% of nominal capacity).



CHAIN GRATE AND SLAG REMOVER ARE OFTEN BROKEN, repairs are complicated causing production disruption.



THE ENERGY EFFICIENCY OF BOILERS BY DIRECT METHOD IS RELATIVELY LOW (57.9%).

FLUE GAS TREATMENT SYSTEM IS SIMPLE, dust discharged to the environment does not meet the environmental regulation.



THE OXYGEN CONTENT IN FLUE GAS IS VERY HIGH (AVERAGE 16.6%), causing a large stack loss.

RECOMENDED SOLUTIONS

Repair and adjust to optimize combustion to improve efficiency of current boiler

OR

Replace existing coal fired boilers with high efficiency biomass fired boilers

IMPLEMENTED SOLUTION REPLACING THE 7 TPH COAL FIRED BOILER

OUTSTANDING ADVANTAGES OF THE NEW BIOMASS BOILER SYSTEM:



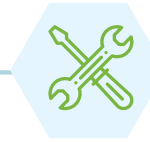
High efficiency, reducing fuel consumption.



Fully automatic or semi-automatic operation.



Biomass fuel is cheap and environmentally friendly: wood chips, sawdust...



Low repair and maintenance costs.



Flue gas treatment by cyclone dust collector and wet scrubber, the flue gas always meets environmental regulation.

RESULTS

FLUIDIZED BED BIOMASS FIRED BOILER ACHIEVED EFFICIENCY OF 76.4%



INCREASED

15.5%

COMPARED TO THE OLD BOILER



THE ANNUAL ENERGY CONSUMPTION DECREASED BY **17,867 GJ/YEAR** (from 63,822 GJ/year to 45,955 GJ/year).

ANNUAL FUEL COST SAVINGS: **1,649 MILLION VND/YEAR.**

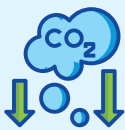
REDUCTION OF 100% OF GREENHOUSE GAS EMISSIONS (equivalent to 8,699 tons of CO₂/year) since biomass with short carbon cycle and it is not accounted in the CO₂ emission causing the greenhouse effect.

PROMOTION OF ENERGY EFFICIENT INDUSTRIAL BOILER ADOPTION AND OPERATING PRACTICES IN VIETNAM

PROJECT OBJECTIVES



Annual energy savings: **1,955,304 GJ/YEAR**



Annual greenhouse gas emission reductions: **183,736 TON OF CO₂EQ/YEAR**

BENEFITS FOR BUSINESS PARTICIPANTS



Free training on boiler efficiency evaluation techniques, EE best boiler operating practices and EE boiler manufacturing



Support to access financing sources and incentives for the implementation of EE boiler adoption and manufacturing projects



Technical assistance from international/national experts to implement EE boiler adoption and manufacturing projects



Energy savings, energy cost reductions, increased competitiveness

CONTACT

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