




CASE STUDY


OPTIMAL OPERATION OF THE BOILER TO REDUCE ENERGY CONSUMPTION at Binh Duong NutiFood Nutrition Food Joint Stock Company

OVERVIEW

SAVINGS:




1,172 TONS
OF BIOMASS/YEAR



1,482
MILLION VND/YEAR

CO₂ REDUCTIONS:



EQUIVALENT TO
1,769 TONS/YEAR

Perhaps, we are one of the lucky companies having a chance to meet the UNIDO Project experts. Before that, we only knew how to start the boiler - operate the boiler – turn off the boiler. We did not know that our company is wasting billions VND of fuel cost per year and emitting thousands tons of CO₂ emission into the environment. With the sharing of knowledge on best boiler operating practices of UNIDO Project experts, we have been able to do the needed actions which should be done in the past years: Innovating management thinking - Innovating operating method - Reducing energy consumption - Reducing emissions to the environment.

LE VAN DUC
Deputy Technical Director,
Central Energy and Boiler Joint Stock Company

BRIEF INTRODUCTION OF BINH DUONG NUTIFOOD

Binh Duong NutiFood Nutrition Food Joint Stock Company (NutiFood Binh Duong) is one of the leading companies in the dairy and nutritional food industry in Vietnam market with a product distribution system throughout 64 provinces and cities. The Company's modern production line is imported from advanced countries, meeting requirements of ISO 9001: 2000, HACCP, GMP and others. In addition to product development activities, NutiFood Binh Duong is also very interested in measures to reduce production costs and protect the environment such as energy savings in the boilers and steam systems. With such goal, in year 2014 NutiFood Binh Duong cooperated with the steam supplier - the Central Energy and Boiler Joint Stock Company to build an additional steam system including biomass boiler and new steam pipelines to replace the old system that was operating.

In September 2018, the Central Energy and Boiler Joint Stock Company cooperated with national 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, as well as implement solutions to improve boiler efficiency to save energy.

THE FINDINGS OF THE ASSESSMENT

THE 15 TPH BOILER FIRING BIOMASS (WOOD CHIPS, SAWDUST) OPERATES WITH A RELATIVELY LOW EFFICIENCY (69.2%)



THE FLUE GAS TEMPERATURE IS ABOVE 200°C



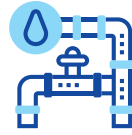
RECOMMENDATION: Repair or replace the broken economizer to recover the heat from flue gas



THE AVERAGE OXYGEN CONTENT OF FLUE GAS IS VERY LOW (3.4%), THE FUEL IS NOT COMPLETELY BURNT



RECOMMENDATION: Adjust the secondary air, maintain the oxygen content in flue gas in the range of 7-9%, that is suitable for biomass burning



THE BLOWDOWN RATE IS VERY HIGH (10.17%), CAUSING ENERGY LOSSES



RECOMMENDATION: Upgrade the feedwater treatment system and install the automatic blowdown system

IMPLEMENTED SOLUTIONS



The old broken economizer was replaced with a new one.



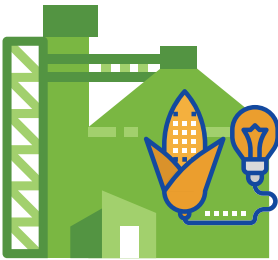
The new RO feedwater treatment system was installed.



The secondary air has been increased and the combustion mode is optimally adjusted to ensure the fuel burns out completely.

RESULTS

BOILER ENERGY EFFICIENCY IS INCREASED BY APPROX. 4% (FROM 69.2% TO 73.1%).



ANNUAL FUEL SAVINGS:
1,172 TONS/YEAR

ANNUAL COST SAVINGS:
1,482 MILLION VND/YEAR



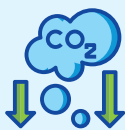
INVESTMENT IN IMPLEMENTING THE SOLUTIONS: 1,000 MILLION VND
PAYBACK PERIOD:
9.7 MONTHS

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



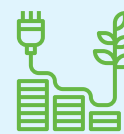
Free training on boiler efficiency evaluation techniques, EE best boiler operating practices and EE boiler manufacturing



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

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

Mr. Sanjaya Shrestha

+43 1 26026 3730

S.SHRESTHA@unido.org

ice-vietnam.com