



CASE STUDY

BOILER OPERATING PRACTICES to reduce energy consumption at VINAPAPER Co., Ltd

OVERVIEW VINAPAPER ACHIEVED:



THE ANNUAL COAL SAVINGS:

700 TONS/YEAR
equivalent to:



CO₂ REDUCTIONS:

1,900 TONS/YEAR



COST SAVING:

1,200 MILLION VND/YEAR



When the UNIDO technical experts shared the knowledge on technical solutions to optimize the operation of the boiler for reducing energy consumption, we realized that in many cases the efforts to protect the environment and reduce polluting emissions do not require a high investment cost, just by changing the way of operating energy used equipment we have saved a lot of money.



Mr. Nguyen Thanh Cuong
Chief of Technical Division
VINAPAPER

VINAPAPER INTRODUCTION

VINAPAPER Limited Company (Bac Ninh) was established in 2009 and is a subsidiary of Berli Jucker Public Company Limited. The VINAPAPER is one of the biggest tissue manufacturers in Vietnam, known as E'mos tissues brand. VINAPAPER's production capacity is 20,000 tons of paper rolls and 20,000 tons of DIP pulp per year. Under the framework of the Expert Training Program on Boiler Efficiency Evaluation Technique 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), two national experts were sent to the Company to carry out the boiler efficiency assessment of operating boilers in March 2017 with the backup provided by an international expert.

THE FINDINGS OF THE ASSESSMENT

BOILER IS BEING OPERATED AT SUFFICIENT LOAD



OXYGEN CONTENT IS QUITE STABLE BUT VERY HIGH AT ABOUT 14.66%



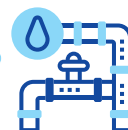
RECOMMENDATION: Tuning the combustion process for lower oxygen content in flue gas.

TEMPERATURE OF FLUE GAS IS VARIED FROM 160°C TO 210°C



Therefore, heat recovery from flue gas is not possible.

FEED WATER IS IN VERY BAD CONDITION AND BLOWDOWN IS NOT PROPERLY CONDUCTED



RECOMMENDATION: Retrofit the feed water treatment system and install an automatic blowdown system.

The system consists of 2 chain grate boilers. Steam capacity of each boiler is 15 ton/hour. Fuel used for boilers is 4B fine coal.



IMPLEMENTED SOLUTIONS

REDUCING THE OXYGEN CONTENT IN THE FLUE GAS



ADJUSTING the frequency of both fans to ensure the pressure of combustion chamber is not too much higher or lower than atmospheric pressure, ensuring stable combustion.



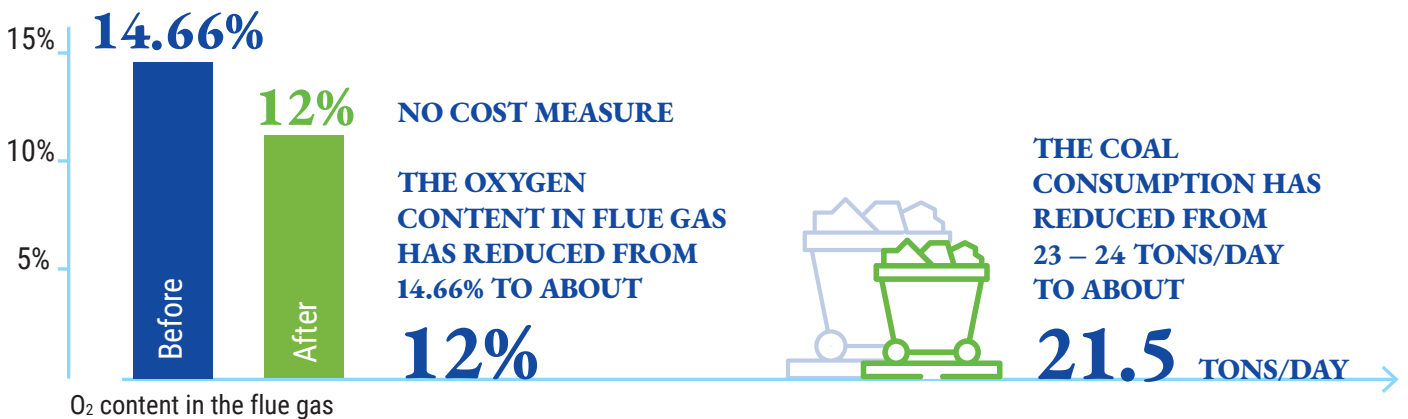
ADJUSTING the air regulating doors on both sides of the win box to reduce the air flow.



MEASURE CO and O₂ content in flue gas and continuously adjust air inlets and adjust the frequency of fans in order to reduce the air supplying and control the CO content in the range required by environmental standard.

RESULTS

The factory has tried to control the O₂ content and it took 2 weeks to try and correct in order to optimize the boiler operation, ensuring the stable operational parameters.

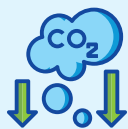


PROMOTION OF ENERGY EFFICIENT INDUSTRIAL BOILER ADOPTION AND OPERATING PRACTICES IN VIETNAM

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

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