

DECARBONISING BOILER SYSTEM WHILE STRENGTHENING COMPETITIVENESS IN A BREWERY IN VIETNAM

Sector: Beer Production

Energy focus: Steam system

THE INVESTMENT

At this brewery, the steam generation system was a critical bottleneck for both operational cost and environmental compliance. The facility relied on an aging coal-fired boiler operating at a low thermal efficiency of just 73%, resulting in excessive fossil fuel consumption and heavy carbon emissions.

Guided by a comprehensive energy audit, the enterprise invested in a strategic thermal transition by **replacing the outdated equipment with a modern, high-efficiency 6-ton biomass-fired boiler system.**

The targeted investment has empowered the plant to:

- Transit completely from coal to renewable biomass fuel;
- Boost thermal efficiency **from 73% to 89%**;
- Eliminate **over 535 tons** of coal consumption annually;
- Comply with the national Specific Energy Consumption (SEC) regulatory mandates;
- Drastically shrink the facility's carbon footprint.

FINANCIAL PERFORMANCE SUMMARY



**TOTAL
INVESTMENT**
15
BILLION VND



**SIMPLE PAYBACK
PERIOD**
~4.7
YEARS



**NET PRESENT
VALUE***
4.37
BILLION VND

*= baseline scenario

ENERGY BENEFITS



COST SAVINGS
3.2
BILLION VND/YEAR
(~241.1 TOE/year)



**ANNUAL COAL
SAVINGS**
535.8
TON/YEAR



**ANNUAL CO₂
REDUCTION**
980.5
tCO_{2e}/YEAR

NON-ENERGY BENEFITS

- **Reduced environmental impact:** Enhances the company's image by demonstrating its commitment to sustainability and environmental responsibility.
- **Compliance with the Law on Energy Efficiency and Conservation:** Supports compliance with industry-specific SEC requirements.
- **Improved reliability:** Ensures a stable steam supply, reducing operational disruptions and maintenance costs.



WHY THIS CASE MATTERS?

The food and beverage (F&B) industry is facing increasing pressure from volatile fuel prices and more stringent carbon emission reduction requirements from both domestic and international markets. In many F&B manufacturing facilities, steam systems account for the largest share of total energy consumption and greenhouse gas emissions.

This case demonstrates that a strategic fuel transition from coal to biomass is an effective solution for reducing carbon emissions in industrial steam systems. By adopting high-efficiency biomass boiler systems, enterprises can improve operational stability, reduce the risks associated with fuel price fluctuations, and lower greenhouse gas emissions from their production processes.

EXPLORE SIMILAR OPPORTUNITIES

For more information and additional case studies, please visit:



**Vietnam – Denmark
Energy Partnership Programme
2020-2025**



**Energy Efficiency
Center of Excellence**



This case was developed under the Voluntary Agreement Scheme (VAS) for the Vietnamese Industrial Sector, part of the DEPP3 Programme (Vietnam – Denmark Energy Partnership Programme Phase III).

VAS supports industrial enterprises in identifying, preparing, and implementing bankable energy efficiency investments through structured audit, pre-feasibility and feasibility assessment processes.