ENERGY EFFICIENCY PROJECT DEVELOPMENT
VAS/DEPP3 Programme



INVESTMENT IN SCRAP SHREDDING AND SHEARING MACHINES TO IMPROVE ENERGY EFFICIENCY FOR A STEEL MANUFACTURING PLANT

Sector: Steel manufacturing
Energy focus: Raw material preparation

At this facility, the steelmaking process—specifically the induction melting furnace - accounts for over 80% of total electricity consumption. The plant's existing scrap processing equipment was outdated and unable to provide consistent, high-density scrap. This poor input quality led to prolonged furnace melting times and excessive energy use.

Through the feasibility study, **new scrap shredding and shearing machines were identified as a high-potential solution to improve operational efficiency in the melting process.**

The proposed solution will:

- Improve scrap recycling efficiency;
- Enhance input material quality;
- Reduce furnace melting time **from 106 to 90 minutes per batch**;
- Reduce total specific electricity consumption **from 2,554 to 2,455 MJ/ton.**

FINANCIAL PERFORMANCE SUMMARY

NET PRESENT VALUE*
~25.6
BILLION VND

SIMPLE PAYBACK PERIOD
~4.5
YEARS

INTERNAL RATE OF RETURN (IRR)*
29%

*= baseline scenario

ENERGY BENEFITS

ANNUAL ENERGY SAVINGS
5,200
MWH/YEAR

ANNUAL CO_2 REDUCTIONS
~3,451
tCO2e/YEAR

NON-ENERGY BENEFITS

- **Improved raw material quality:** Increased scrap consistency and improved the quality of finished steel products.
- **Increased productivity:** Reduced melting time and increased scrap processing capacity.
- **Improved occupational safety:** Enhanced working conditions through modern and automated equipment.
- **Enhanced competitiveness:** Optimized production costs and improved product quality.

7 AFFORDABLE AND CLEAN ENERGY
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
13 CLIMATE ACTION
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
17 PARTNERSHIPS FOR THE GOALS

WHY THIS CASE MATTERS?

The steel industry is among the largest industrial energy users in Viet Nam, facing intense pressure from rising energy costs and stricter low-carbon export requirements.

This case proves that optimizing raw material preparation before melting can substantially impact the efficiency of the entire steelmaking process. With a specific energy consumption (SEC) reduction of approximately 3.9%, this solution offers a highly replicable pathway for steelmakers to lower operating costs.

EXPLORE SIMILAR OPPORTUNITIES

For more information and additional case studies, please visit:

Vietnam – Denmark Energy Partnership Programme 2020-2025

Energy Efficiency Center of Excellence

NET ZERO



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.