ENERGY EFFICIENCY PROJECT DEVELOPMENT
VAS/DEPP3 Programme

INVESTMENT IN AN ELECTRIC SERVO PRESS TO IMPROVE ENERGY EFFICIENCY AND PRODUCTION PRODUCTIVITY

Sector: Mechanics
Energy focus: Forging

At this mechanical component manufacturing facility, the hot forging process is a major bottleneck for both energy consumption and working conditions. The plant relies on medium-frequency induction furnaces to heat steel billets, which alone account for 33.4% of the forging workshop's total electricity use. Additionally, this outdated process generates hazardous noise levels of 115 dB and requires extensive post-forging machining due to thermal deformation.

Through the feasibility study, the enterprise identified a strategic solution to **transition from hot forging to cold split-flow forging by investing in the state-of-the-art 300-ton digital servo press**.

Once implemented, the proposed solution will:

- Completely eliminate the energy-intensive billet heating process;
- Reduce electricity consumption in the forging stage by **over 61%**;
- Plunge operational noise to a safe level of **under 75 dB**;
- Achieve near-net-shape accuracy, cutting post-machining time **by 75%**.

FINANCIAL PERFORMANCE SUMMARY

NET PRESENT VALUE*
~2.85
BILLION VND

SIMPLE PAYBACK PERIOD
4.3
YEAR

INTERNAL RATE OF RETURN (IRR)*
20.3%

*= baseline scenario

ENERGY BENEFITS

ANNUAL ENERGY SAVINGS
~276,9
MWH/YEAR

ANNUAL CO_2 REDUCTION
182.5
tCO2e/YEAR

NON-ENERGY BENEFITS

- **Improved product quality:** Higher accuracy and better surface finish.
- **Reduced post-forging processing:** Fewer finishing operations and less rework.
- **Improved working environment:** Lower noise, heat and vibration.

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 mechanical engineering and automotive component industry in Viet Nam faces mounting pressure from volatile energy costs and stringent Environmental, Social, and Governance (ESG) standards demanded by global supply chains. Traditionally, metal heating and hot forming have been the most energy-intensive and carbon-heavy stages of production.

This case proves that a structural technology shift - from hot forging to digital servo-driven cold forging - offers a transformative pathway for manufacturers. By adopting split-flow cold forging, enterprises can completely eliminate their reliance on fossil-fuel-heavy heating furnaces, drastically lower their carbon footprint, and achieve the high-precision, low-carbon manufacturing standards required by top-tier international OEMs.

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.