

STEAM AUDIT – Greece, nr. 4

FACTSHEET



Companies connection to energy efficiency

The company is certified according ISO 22000 (HACCP), ISO 9001 and ISCC EU.

Steam system

The main activity of the enterprise industrial plant is the production of vegetable oils and biodiesel.

Steam boiler information

Size: 4.500 kW
Nominal steam capacity: 7.000 kg/h @ 12 bar
Boiler's operation: 2,000 hours/year
Kind of fuel: Natural Gas

Steam system problems identified

- ✓ The operational steam boiler requires considerable maintenance work
- ✓ Many components of the steam distribution network require immediate maintenance and many corrosion problems have also been noted
- ✓ Most of the steam traps either have leaks or are dysfunctional
- ✓ The central steam distribution pipe between the steam boiler and the central steam collector has a significant leak
- ✓ The condensate tank de-aerator is not functioning properly
- ✓ The excess air of Steam boiler 1 (43,88%) is considered to be excessive and results in heat losses due to the heat transfer to the excess ambient air.
- ✓ The steam boiler is adequately insulated. Some minor surfaces of the steam boiler and also of the pipe network are un-insulated

Proposed energy saving measure(s), investments, and expected results (in figures)

- Insulate un-insulated steam distribution lines: Savings: 61,150kWh/year => Simple payback < 6 months, Cost savings: 2.482€, Cost of measure: 1.500 €.
- Insulate un-insulated hot surfaces (steam boiler, hydraulic valves, flanges etc.) Savings 4.977kWh/year => Simple payback = 1-2 years, Energy savings in fuel consumption: 14,850 kWh/m, Cost savings: 4.000€, Cost of measure: 5.000-8.000 €.
- Housekeeping measure: Install a control system to regulate the amount of make-up water - Repair steam leakage problems- Repair steam boiler safety valve- Replacement of steam condensate tank: Energy savings 675.037 kWh/year, Cost savings: 27.400 €/year.
- Feedwater economizer for waste heat recovery: Savings 233,000 kWh/year=> Simple payback = 6,7 years, Cost: 65,000€, Annual fuel savings: 10.500€.
- Reduce excess air in steam boiler 1. Zero to low-cost measure with immediate payback
- Energy consumption monitoring system.



Greece

Biofuels

Production of vegetable oils and biodiesel.

Number of employees: 15

Total (estimated) Investment

~€ 90.000

Total (Estimated) Savings

0,97 GWh/yr

Non Energy Benefits

- Reduction in maintenance needs.
- Reduction of corrosion problems.
- Prediction and repair of malfunction of the system

Implemented proposed energy saving measure(s), investments and results achieved (in figures)

The proposed measures are not yet implemented.

Achieved and/or expected Non Energy Benefits (NEBs) as result of implemented and/or proposed measures and investments involved

Expected NEBS as a result of proposed measures:

- ✓ Reduction in maintenance needs.
- ✓ Reduction of corrosion problems.
- ✓ Prediction and repair of malfunction of the system
- ✓ Facilitation of the personnel to control and supervise the system

Involvement of internal stakeholders

The factory management has seriously considered the recommendations which proposed through the results of the energy audit carried out by the CRES.

Taking into account the whole of recommendations has launched their implementation.