



## Case Study

# BOILER

Energy efficient investment in improving steam production process

**THE CHALLENGE** | Tradebe Port de Barcelona (ECOIMSA) leads the Heavy Fuel recovery in the Catalan Coast from the early 90's. The current process includes several steps, to get the 'end of waste' accreditation.

Many stages of this process require heating. The heating source is saturated steam at low pressure, generated in a steam boiler.

The boiler has been running during several years with a heavy Fuel burner. During the 2021 a new boiler has been required. At that moment in time, different improvements in boiler and burner design were internally discussed and explored.

The heavy Fuel burners have several implications in maintenance costs and energy efficiency. The key aspect is the minimum temperature required in the Flue Gas. This can't be reduced as much as with other lighter Fuels in order to avoid acidic compounds condensation.

The original boiler efficiency was round to 80%.

**THE SOLUTION** | A new boiler with Natural Gas burner has been procured. Additionally, an economizer has been installed. Due to the low temperature of the Flue Gas with a Natural Gas burner, the economizer allows energy savings to the system.

The economizer runs preheating the water inlet with the flue Gas, in a heat exchanger.

The flue Gas temperature has been reduced from round 250 °C to round 145 °C. **With the current installation, the efficiency has increased from 80 to more than 90%.** The recovered heavy Fuel from MARPOL IC waste (called 'Tradebe green Fuel' – TGF -) is sold to vessels, as circular economy of shipments. Most vessels have heavy Fuel motors.

**BENEFITS** | With the Fuel replacement and this investment, Tradebe Port de Barcelona (ECOIMSA) has improved:

- **Availability of the installation**, as the original one required several cleaning and maintenance shutdowns per year
- **Reduction of business interruption** due to those maintenance periods, now almost inexistent
- **Better energy efficiency**: from 80 to more than 90%
- **Cost opportunity**: the available **recovered 'TGF'** is nowadays larger than in the past and therefore is available to be sold to third parties

**INVESTMENT:** 369.062,16€

**DURATION:** 24 Months

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