

# REBUILT

REENGINEERING BUSINESS UNDER CLIMATE CRISIS

## Action Plan Implementation

### COMPANY NAME AND WEBSITE:

OLYMPIC REPAIRS

### COMPANY DESCRIPTION:

“Olympic repairs” is a privately owned Greek technical and trading company that offers complete engineering services on marine and energy industry in the town of Piraeus/Greece.

The company specializes in repairing, rebuilding, and overhauling of any engineering installation including the machining construction of various parts, from shipping and industry, as well as spare parts trade.

“Olympic repairs” representative was invited and attended the rebuilt course program, studied the training material, and participated in answering modules quizzes.

we collaborated in the field of waste management and energy consumption studying the company’s processes and activities.

The data and information provided during our interviews this period is an input for the following study and the proposed tailor-made action plan.

### COMPANY’S CURRENT SITUATION (PROBLEMS):

#### A. ENERGY CONSUMPTION

According to the data, the company consumes 8,000 kwh of electricity annually. this consumption for €0.17/ kwh can give an annual cost of €1,360 without calculating vat, municipality fees, etc.

#### B. FUEL FOR VEHICLES

Business drivers pass through 10,000 km a year, spending €200/ month on fuel. The annual cost is €2,500 per year.

#### PROCESSES THAT HAVE BEEN DISCUSSED TO BE REENGINEERING:

Given the power consumption of 8,000 kwh and the extra load for charging vehicles (1,500 kwh) it would have a total load requirement of 10,000 kwh per year.

Olympic Repairs' investment proposal is to install a Net Metering Photovoltaic System of 16,000 KWh, predicting additional future needs or heating and cooling needs.

Such an investment will cost approximately €14,000, including the charging device. Given the costs of the current situation (a and b), this investment could be paid back in a 3.5-year period.

in addition, it would also eliminate co2 from the carbon footprint of electricity consumption.

the purchase of electric vehicles could also be suggested. This option would increase the payback period, but it would offer an absolutely green activity.

The replacement of light bulbs with LEDs is also suggested for additional energy savings and a reduction in emissions.

#### PROCESS THAT WILL BE REENGINEERED

Energy production through photovoltaic system to cover the energy needs.

Purchase of electric vehicles to replace the old ones and eliminate the use of fuels.

Replacement of light bulbs in the company with LED to minimize the energy consumption.

#### ACTIONS TO BE TAKEN FOR THE REENGINEERING OF THE PROCESS:

Discussions with constructors and market research for the establishment of renewable technologies and smart systems that will reduce the CO2 emissions for the company.

#### MONITORING

The replacement of light bulbs with LEDs has already been implemented in the direction of energy savings and emissions' reduction.

The company has also already completed its market research and it has a final agreement with a constructor in order to establish a net-metering photovoltaic system for the production of electricity in order to cover its own energy needs.

#### RESULTS OF THE IMPLEMENTATION

One MWh of electricity provided via the national energy grid produces approximately 60.55 tons of CO2 equivalent.

Olympic repair's annual electricity consumption is on average 8 MWh, with an annual co2 equivalent would be approximately 4.85 tons.

by implementing the re-engineering proposal with renewable energy would result in only 0.48 tons of co2 equivalent.

The effective reduction in emissions would be up to 4.36 tons of CO2 equivalent, achieving a decrease of up to 90% from current CO2 emissions.

The CO<sub>2</sub> equivalent factor for fossil fuel used for vehicles is 2.58 for diesel-powered vehicles (CETA, 2022).  
Olympic repair's vehicle fleet consumes an average of 1.52 tons of diesel fuel every year, resulting in emissions of approximately 3.92 tons of CO<sub>2</sub> equivalent.  
According to various sources (MIT 2022; USDE 2022), the factor between gasoline cars and fully electric ones is approximately 0.57.  
By replacing their existing vehicles with fully electric ones, Olympic Repairs can achieve an annual reduction in emissions of approximately 2.24 tons of CO<sub>2</sub> equivalent, achieving a decrease of 43%.

#### FURTHER RECOMMENDATIONS