



biomass boilers for water heating

# BIOMASS

Source of renewable energy

- ▶ ADVANTAGES
- ▶ APPLICATIONS
- ▶ TECHNOLOGIES

## BIOMASS - WHAT IS IT?

Biodegradable fraction of products and wastes with biological origin, from:

- ▶ forest exploration;
- ▶ agriculture;
- ▶ industrial by-products;
- ▶ urban and industrial solid wastes.

**BIOMASS IS A SOURCE OF RENEWABLE ENERGY.**



greater heat output

lower water content

lower ash content

better combustion

**BIOMASS - SOURCE OF RENEWABLE ENERGY.**

## BIOMASS - IMPORTANCE AS AN ENERGY RESOURCE

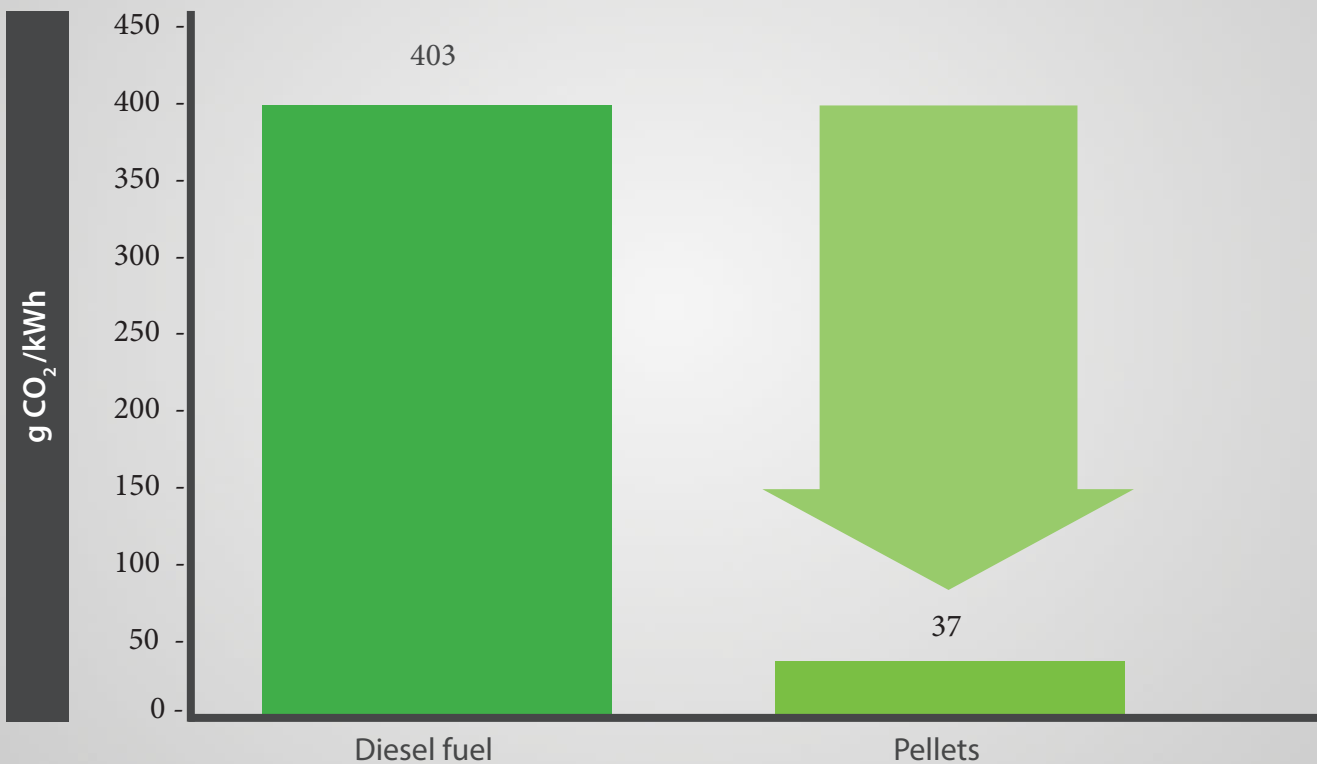
DO YOU KNOW THAT...

... 67,9% of the energy from renewable sources in the EU comes from biomass sources?

... the use of biomass reduces 91% of CO<sub>2</sub> emissions, in comparison to the use of heating diesel fuel?

... in Portugal (2009), the use of biomass for heat production corresponded to the use of 2,341,089 tons of oil?

## Reduction of CO<sub>2</sub> emissions by unit of energy production.



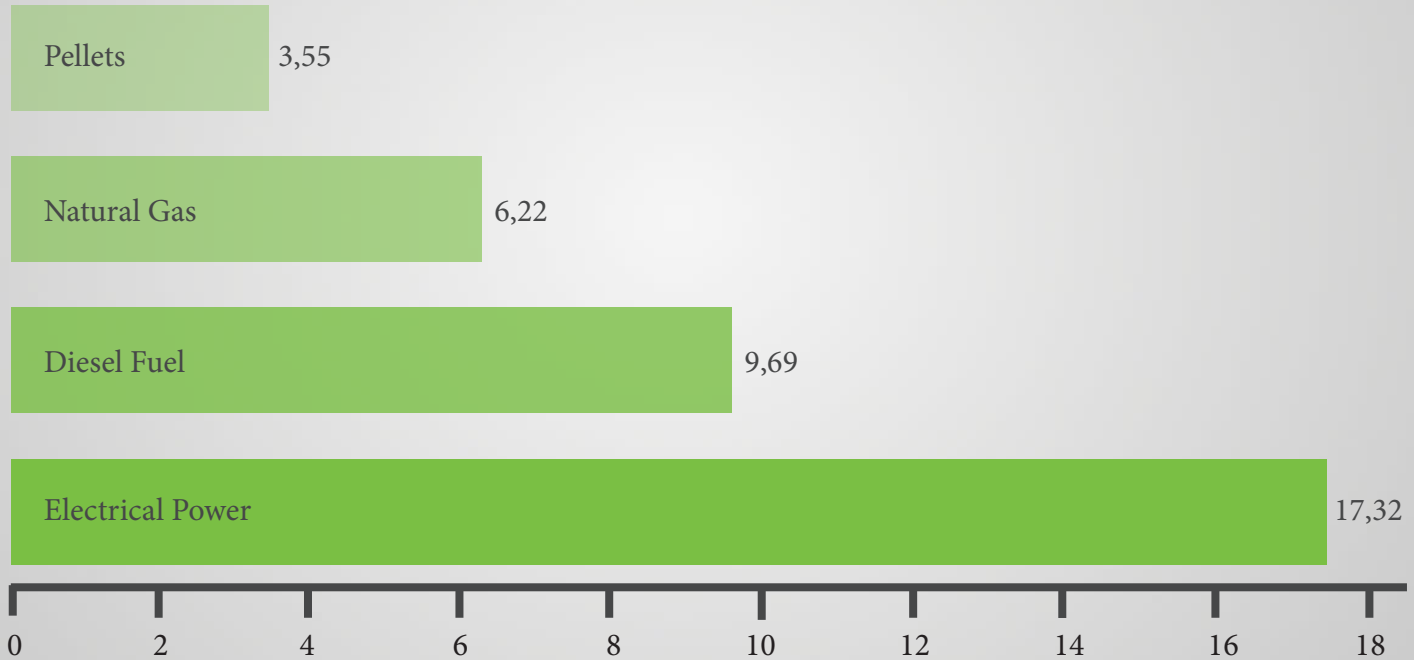
AND DO YOU  
KNOW THAT..

... 2 kg of  
pellets supply  
the same amount of  
energy than 1 L of  
diesel fuel?

...  
Portugal  
produces and  
exports large  
quantities of pellets,  
being available in the  
national market at  
a competitive  
price?

...  
to produce  
the same amount  
of heat, biomass is 2 to  
3 times cheaper than the  
conventional  
fuels (natural gas and  
diesel)?

## Cost of fuel for heating purposes (cent/kWh)



## **FAST RETURN ON INVESTMENT (ROI)**

The low cost of biomass allows a significant reduction on the operation cost of the systems and a faster return on investment.

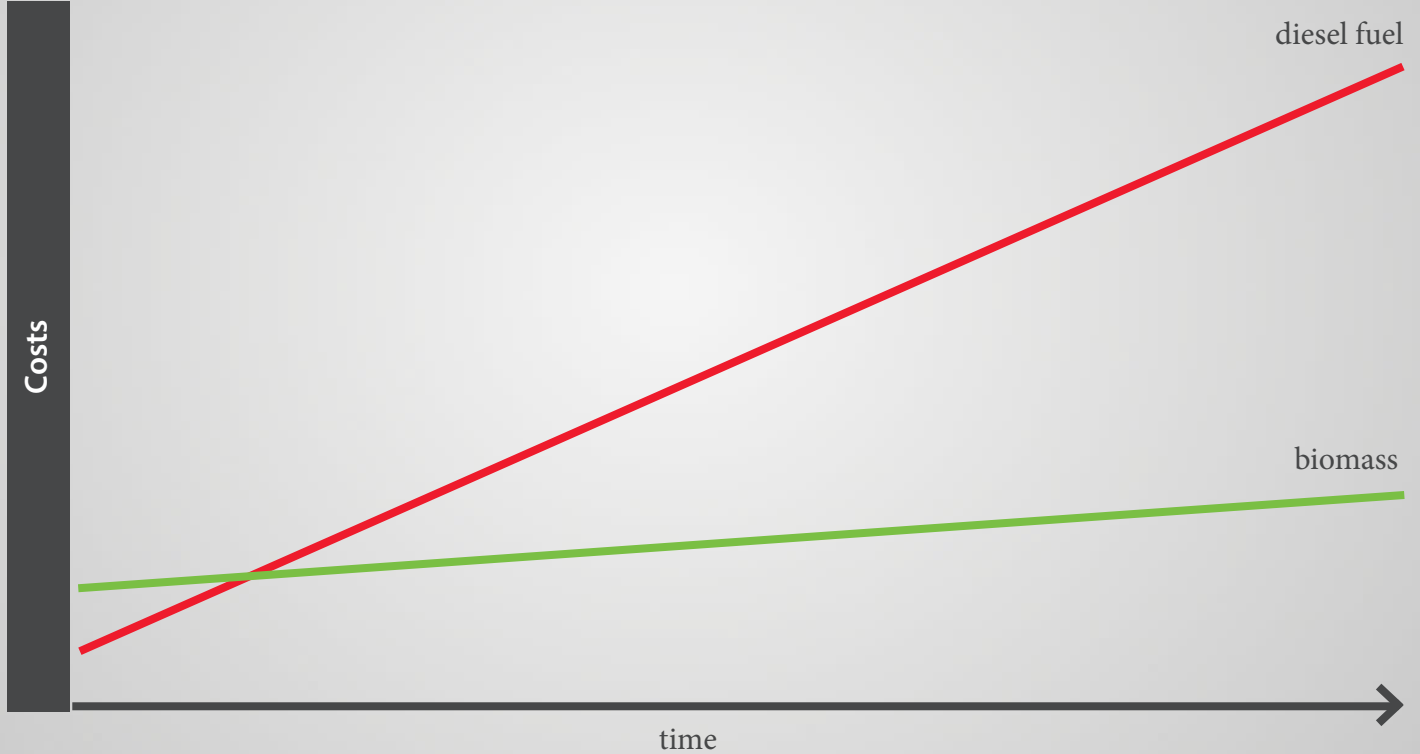
**QUANTIFY YOUR COST REDUCTION WITH BIOMASS USE!**

**VENTIL develops an economic study for your own case-study.**

# **CHANGE FUEL, SAVE MONEY!**



## Time evolution of cost (initial investment + operation)



FOR A SUSTAINABLE FUTURE.