

# OPTIMAL USE OF THE AVAILABLE BIOMASS RESOURCES, RECYCLING AND EFFICIENT UTILIZATION OF BY PRODUCTS AND RESIDUES

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## CORRESPONDING MODULE 5

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### Introduction

A renewable energy source is an energy source whose use is not associated with a permanent shortage, as it is renewable in the short term. Sources of renewable energy include, among others, solar radiation, wind, heat from the Earth's interior, water, **biomass**, biogas and biofuels.

Biomass can be defined as follows: *The biodegradable fraction of products, waste or residues of biological origin from agriculture, including plant and animal matter, forestry and related industries including fisheries and aquaculture, processed biomass, in particular in the form of briquettes, pellets, torrefaction and biocarbon, as well as the biodegradable fraction of industrial or municipal waste of plant or animal origin, including waste from waste treatment installations and waste from water and waste water treatment, in particular sewage sludge, in accordance with waste legislation on the eligibility of the energy fraction recovered from the thermal treatment of waste.*

### Description

Tubocás S.L. is an experienced and innovative company located in the northeast area of the province of Granada. It was born with a firm and strategic orientation based on renewable energies, focusing on **biomass as an ecological fuel** for the supply of its heating systems.

The facilities are made up of several constructions of annexed warehouses totalling 3,942 m<sup>2</sup>. These are located on two plots of land with a total area of 84,936 m<sup>2</sup>.

Since 2008 we have been manufacturing professional biomass heating equipment for greenhouses.

In 2013 the company was awarded the Andalucía Emprende prize by Junta de Andalucía as the most innovative company in the province of Granada.

In 2014, work began on the new factory, a 2,800 m<sup>2</sup> facility on a 40,000 m<sup>2</sup> plot, and in March 2015 the company moved to its current facilities in Huéscar (Granada). Here the manufacture of hot air generators and the production of high quality pellets is carried out.

In September 2015 our new brand TUPELLETS was born with **ENplus® A1** certification, with high calorific value, granted by the Spanish Association for Standardisation and Certification (AENOR) and issued by AVEBIOM.

The pellet brand tupellets, is an ENplus A1 certified product, totally natural, catalogued as solid biomass, which is formed by very small cylinders, 6 millimetres in diameter. Made from dried natural sawdust, from debarked pine, without any additives, as the lignin contained in the sawdust is used as a binder, compressing the sawdust at high pressure to form the pellet, which makes the pellets have a very dense and hard composition. This gives the pellets a high calorific value.

They can be used for heating and hot water by using special pellet cookers or boilers.

TUBOCAS, S.L. was founded in the nineties in Castelléjar (Granada), after three generations dedicated to the manufacture of metal carpentry and forge products. The TUBOCAS team is formed by more than 15 people, including industrial engineers, administration and management staff, physicists, forestry engineers and mechanics, as well as



welding clerks, workshop and machine operators, sales staff and tradesmen. The facilities are made up of a number of annexed buildings totalling a total of 3,942 m<sup>2</sup>. These are located on two plots of land with a total area of 84,936 m<sup>2</sup>.



*Image 1: General view of the facilities*

Source: <https://www.tubocas.net/> (Provided by the company)



*Image 2: Energy sources used on the farm  
Source: Provided by the company*

## Advantages and challenges

In tubocas tupellets are committed to the environment, so only manufacture and handle fully recyclable products and produce the highest quality pellet certified with ENplus A1

They develop their own products, adapting them to the needs of each client. They have an R+D+I department, where they research the best solutions to generate maximum productivity in their systems, thus achieving the best results on the market.

Due to the high demand for pellets to fuel domestic and industrial cookers, our immediate goal is to increase production.

### Advantages and disadvantages pellets:

- Advantages:
  - It is an economical fuel, half the price of diesel.
  - The wood is obtained through programmed forestry processes.
  - Most pellet cookers and boilers are automatic.
  - As it is very dense and in granulated form, it takes up very little space and can be easily transported as if it were a liquid.
  - It does not pollute, as it is CO<sub>2</sub>-neutral biomass, which helps to avoid the emission of greenhouse gases into the atmosphere.
  - It is 100% natural, so it is not dangerous and does not produce bad smells like diesel.
  - They do not produce smoke, only on ignition, so pellet cookers and boilers only need a gas outlet, not a large chimney like wood cookers.
  - It does not expire, nor does it spoil as long as it is stored in a dry place.
  - The main advantage is that we use all parts of the tree, extracted from the forest and separated from the trunk by
- Disadvantages:
  - They require regular cleaning.
  - You must have adequate space for storing pellets.
  - They need an electrical source to operate.
  - The initial investment for the installation is high compared to cookers that use other types of fuel.



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### Main data

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### Further Information

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tubocas-empresa-de-  
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