



BIOMASS ENERGY

PELLETIZATION

The pre-treatment and densification of biomasses and other low density materials results in a better handling and valorization, both in energy and material. The pre-industrial facility and the methodology developed by CENER enable the development of ad-hoc densification processes, and the viability evaluation of its industrial implementation.

CENER is experienced in the handling, pretreatment and densification of a wide range of biomasses, both herbaceous and woody, organic wastes, materials processed under thermal treatments (Torrefaction, HTC...), char produced in thermochemical processes, etc....

The pre-treatment facility, integrated in CENER Second Generation Biofuel Centre, is composed of the following equipment:

Chipping (woody biomass) and chopping (herbaceous biomass):

- Chipper: 22 kW; capacity up to 1000 kg/h.
- Chopper: 55 kW; capacity up to 3000 kg/h.



Drying (trommel-type rotary dryer):

- Burner power: 580 kW.
- Hot gas flow: 6000 kg/h at 300°C.



Production capacity of the Pelletizing plant is between 200 – 500 Kg/h, depending on the material. It includes:

- Hammer mill (screen size 2-12 mm).
- 1 m³ mixer, with moisture content adjustment and additive feeding.
- 30 kW mill press: cylindrical die.
 - Possibility of ad-hoc die designs and pellets diameter adjustment, compression ratio, number of holes, etc...

The facility is completed with a Solid Biofuels Characterization Laboratory.

From several raw materials, CENER facility and experience enable:

- The development of pre-treatment and densification processes, according to the product characteristics (pellets), pelletization matrix and process conditions (particle size, compression ratio, energetic consumption, performance, etc...).
- Process optimization: conditions and additives.
- Production of significant material quantities for tests in (semi)industrial conditions of the foreseen applications.

CENER Biomass Department also provides the following services:

- Solid Biofuels Characterization
- Technical and Economic Feasibility Studies.
- Development of Torrefaction processes
- Life Cycle Analysis

