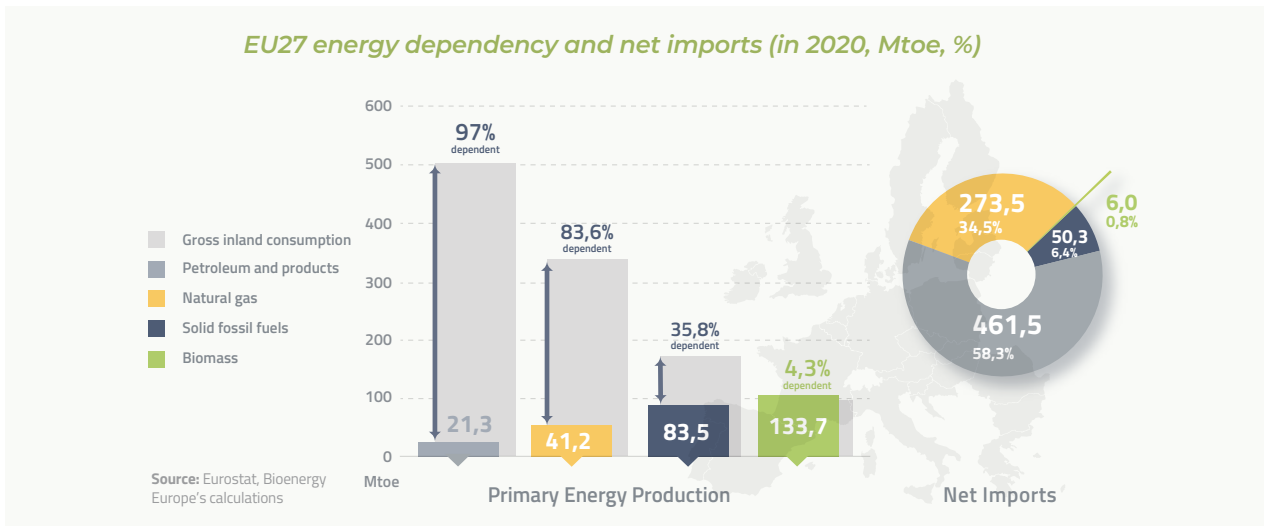


BIOENERGY:

The solution to the current energy crisis and a sustainable future

The EU is at a critical juncture for its energy future. As concerns about energy security and climate continue to grow more than ever, it is becoming increasingly clear that the traditional fossil fuel-based model of energy production is no longer an option. In order to meet our energy needs in a way that is both sustainable and resilient, Europe must turn to alternative sources of energy, including bioenergy from solid biomass.

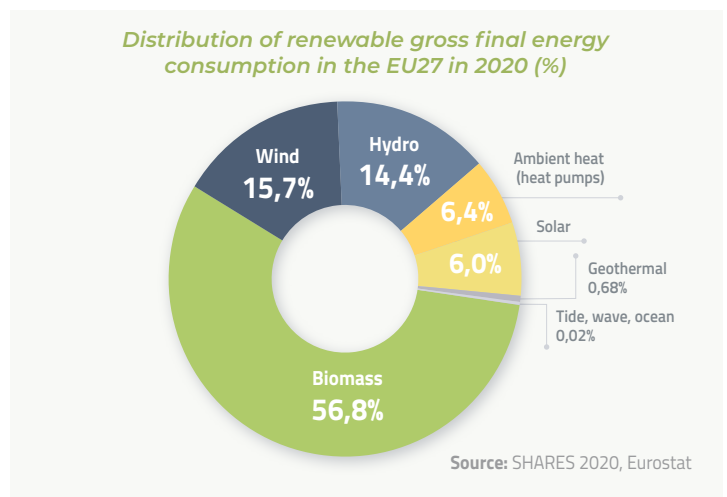


Readily available solution for EU energy security

Bioenergy has the potential to play a significant role in the ongoing energy transition, providing a clean, renewable source of energy that can help to reduce our reliance on fossil fuels and curb greenhouse gas emissions. In addition, Russia's military aggression against Ukraine has revealed the EU's over-dependency on foreign fossil fuels and highlighted the need to secure the autonomy of the EU's energy system. The high energy prices and the risk of supply shortages across the EU have made even more urgent the acceleration of the green and digital transition under the European Green Deal, to ensure a secure, more affordable, resilient and independent energy system.

The import dependency of bioenergy remains very low (4,3%), especially if compared with fossil fuels, upon which the EU energy system is still largely dependent. As witnessed with the recent gas price surge, Europe remains vulnerable to fossil fuels price fluctuations and instability. While the consumption of renewable energy has grown significantly in the last decade, its share of the market needs to be increased in order to achieve climate neutrality by mid-century.

When looking at the overall energy mix, bioenergy makes up 56,8% of all renewables and 11,4% of the total energy mix – making it a significant provider of renewable energy. The main market segment for bioenergy usage remains heating for residential as well as industrial consumers. In 2020, 26,3% of the final consumption of bioenergy came from the industrial sector (23.321 Ktoe) with 27% of bioelectricity self-produced by the sector itself (3.783 Ktoe). Long term perspectives and fair market conditions are necessary for supporting the development and innovation of bioenergy.



Supported by:



BECCS and carbon removal technologies

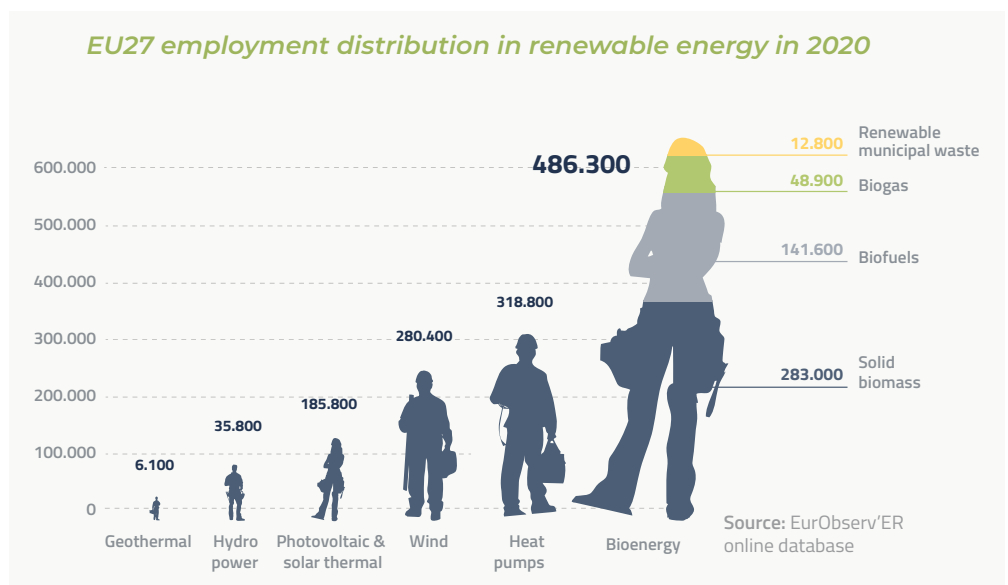
Delivering on the European Green Deal objectives will require the EU to develop, implement and scale-up innovative energy efficiency and renewable energies solutions. Half of the greenhouse gas emission reductions expected by 2050 will require technologies and systems that are not yet ready for the market, such that research and innovation (R&I) activities are crucial components to increasing the EU’s technological sovereignty and global competitiveness.

In this context, carbon removal will have a key role to play. However, robust monitoring, reporting and verification rules are still lacking, and would be necessary for successful implementation of carbon removal. The EU needs a trustworthy system to quantify removal so that it can achieve climate neutrality by 2050 and net negative emissions thereafter. BECCS (Bioenergy with Carbon Capture and Storage) is an industrial technology capable of capturing and permanently storing carbon, and is expected to be a prominent, developed and cost-effective carbon removal solution. Meanwhile, the broad application of high potential, sustainable and readily scalable solutions like biochar or PyCCH (Pyrogenic Carbon Capture and Storage) can fast-track the Commission’s efforts in achieving the 2050 goals.

Bioenergy: an affordable solution creating jobs for the green transition

Bioenergy is an already available renewable energy source, utilising local biomass, with a manufacturing value chain solidly based in the EU. This means abundant job creation and great potential in contributing to the rebound of the economy and the green recovery. Being the best renewable energy source in terms of direct and indirect employment, bioenergy accounts for 486.300 jobs in the solid biomass, biofuels, biogas and renewable municipal waste sectors combined. In 2020, its turnover represented 49.550 million EUR in the EU27.

In 2021, EU manufacturing of clean energy technologies and solutions greatly increased, reversing the trend seen in 2020. Production of bioenergy (e.g. pellets and wood chips) increased by 5%.



Key Messages

1. Bioenergy is one of the few available solutions for decarbonising energy-intensive industrial processes where high temperatures and pressure are required. A suitable policy framework should therefore be developed to better support industrial needs and allow for a thriving bioenergy sector.
2. Carbon removal activities have great potential for delivering results in terms of carbon sequestration, biodiversity restoration, circular economy and sustainable farming. To this end, investing in negative emissions technologies, such as Bioenergy with Carbon Capture and Storage (BECCS) and biochar, should become a priority.
3. Biomass is the only fuel that must comply with strict sustainability requirements which are already fully supported by the sector itself. A stable yet ambitious framework must be developed to promote investments in sustainable solutions like bioenergy.