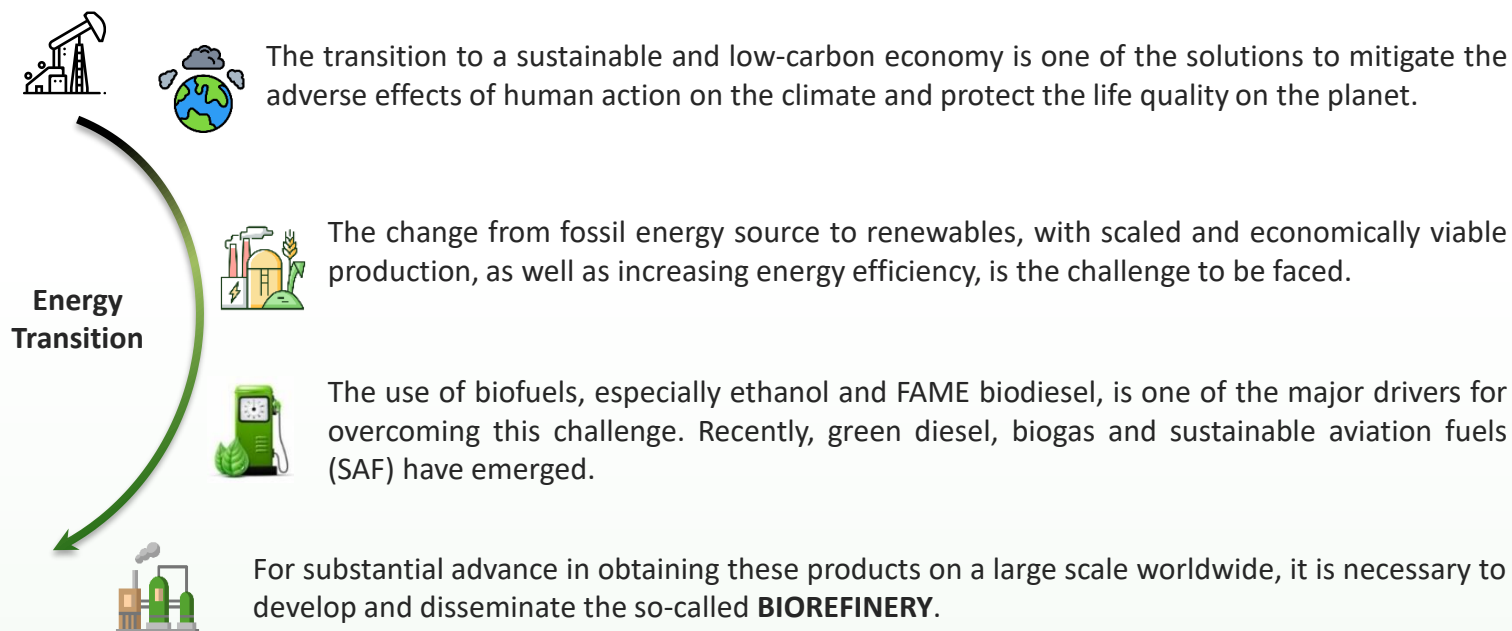
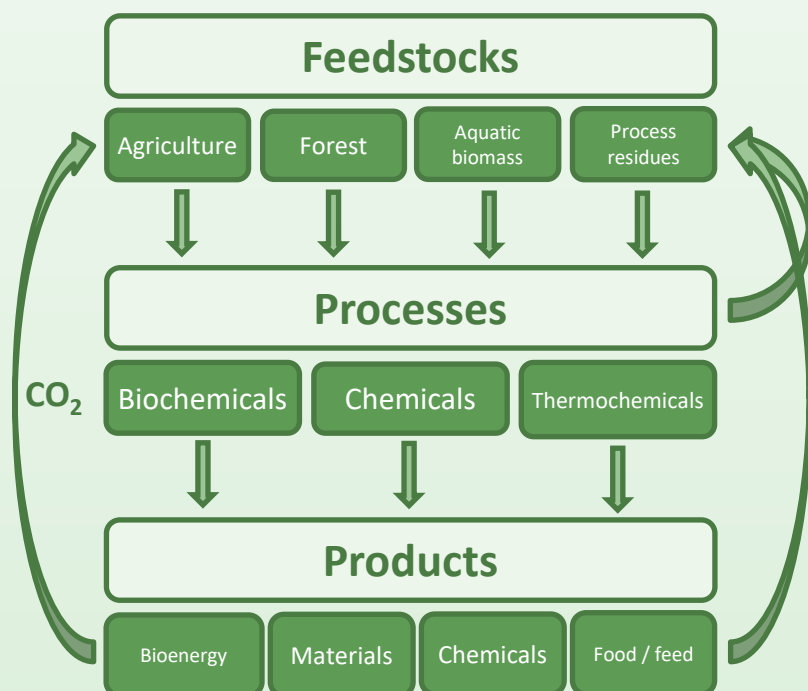




In the broader concept, the **BIOREFINERY** is a set of facilities that integrates biomass conversion processes and equipment to produce value-added fuels, energy and chemical products, optimizing the use of feedstocks and improving process efficiency.

Conceptual Diagram



1st GENERATION

Transform organic feedstock into market products, with residues reuse for energy generation, to the process and to the energy grid.

When they use only one type of feedstock, they are called **DEDICATED**.

2nd GENERATION

Use multiple routes and processes, being configured for converting various feedstock and waste into energy, bioproducts and base molecules.

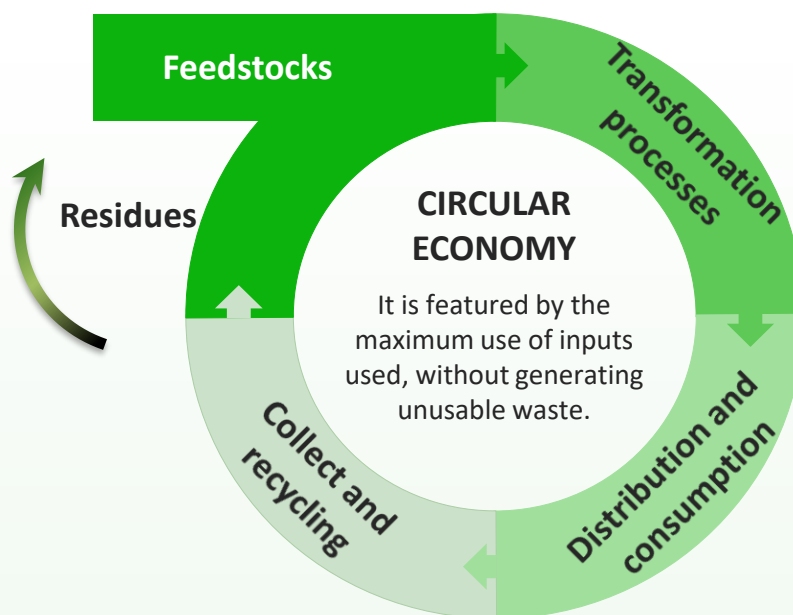
For greater competitiveness, it is necessary to compile and intersect regulatory legislation, currently dispersed among different economy sectors, for the max penetration of its products in the market, in rivalry with fossil analogues.

For the fulfillment of second-generation biorefineries, efforts are needed from the government and private sectors, with different skills in their areas.



Scientific research and incentives in general are important to bring this new **CIRCULAR ECONOMY** industry, without generating waste, aiming at sustainability and the least possible environmental impact, with production focused on sustainable systems, products and services, using renewable resources.

The circular economy is a production and consumption model that involves sharing, reusing, repairing and recycling materials and products, extending their life cycle.



It differentiates from the traditional linear model, “produce-use-discard” and is inspired by the mechanisms of natural ecosystems, which generate resources in the long term, in a continuous process of reabsorption and recycling.



Social Component

It is important to introduce the social component through public policies, enabling the economic and environmental effects of this new activity to be fully appropriated by society, in a comprehensive way, strengthening the inclusive economy within the concept of BIOREFINERY.



An example of social inclusion in public policy is the *Selo Biocombustível Social* (Social Biofuel Seal - SBS), which includes family farmers producing feedstock for the Biodiesel Production and Use Program (PNPB).

The Brazilian biofuel production sector has knowledge and an accumulated learning curve in its agricultural, industrial, regulatory, distribution and final consumption phases. This complex chain has made significant advances for the evolution of BIOREFINERY and, consequently, for the SUSTAINABLE ECONOMY.

It is necessary to start from this base and experience in the dissemination of objectives among the various involved actors to reach the international targets of greenhouse effect gases reduction.