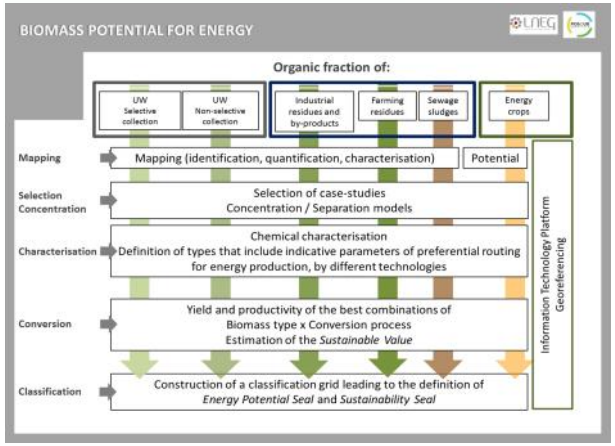
The CONVERTE project will identify and quantify the different waste biomass types generated in the mainland Portuguese territory, and will develop a biomass-driven energy matrix to correlate the waste biomass types with eight technological value chains for heat, power and/or advanced biofuels production. This is expected to have a positive impact on national energy security and to reduce the Portuguese global greenhouse gas (GHG) emissions, notably in the transport sector, contributing to increase the country's sustainability score.

The CONVERTE project aims to identify objectively and to quantify the different types of endogenous biomass that can be applied in the short-medium term to economically viable technological solutions for the production of power and heat, energy vectors, and especially advanced biofuels, in compliance with all the sustainability criteria set by the European Directives, in particular the Red II Directive (2015/1513).



Cofinanciado por:

POSEUR PORTUGAL 2020 UNIÃO EUROPEIA Fundo de Coesão

http://converte.lneg.pt/

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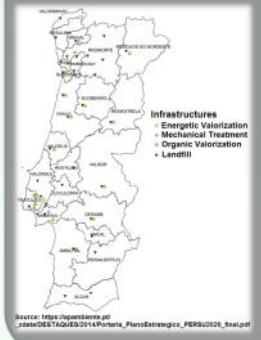
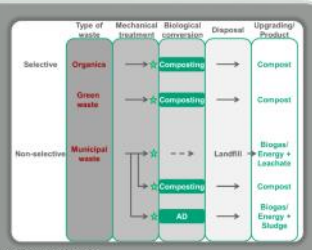
CONVERTE

BIOMASS FOR ENERGY

ACTIVITIES

URBAN WASTES





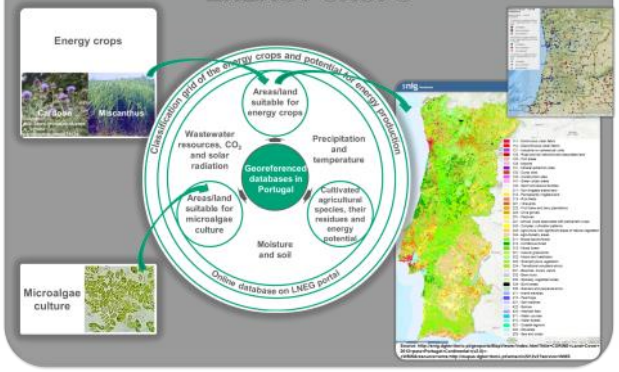
CASE STUDIES

- Organic matter from the separate collection of municipal waste
- Green waste
- Rejects obtained after mechanical separation of municipal waste
- Organic fraction obtained before composting of municipal waste
- Organic fraction obtained before anaerobic digestion of municipal waste

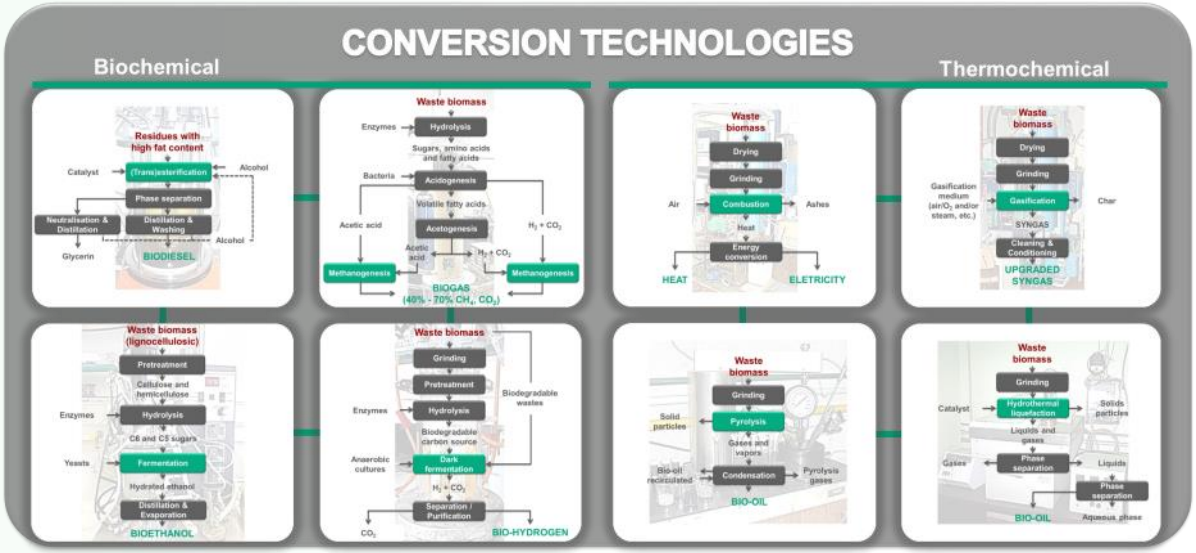
INDUSTRIAL WASTES

- Sludges
- Solid residues (wine and olive bagasses, rice straw etc.)
- Liquid effluents
- Sludges from Industrial Wastewater Treatment Plants (IWWTP)
- Fat residues
- Liquid effluents
- Solid residues (straw, sawdust, etc.)

ENERGY CROPS



CONVERSION TECHNOLOGIES



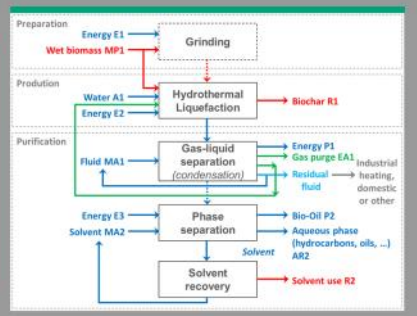
SUSTAINABILITY

$$Sustainable\ value = \frac{Performance}{Resources}$$

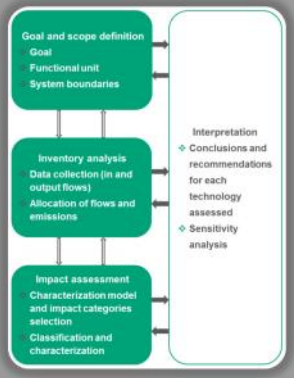
Selected Performance Indicators

1) Conversion efficiency
2) Flexibility of the raw materials at the entrance
3) Amount of materials incorporation
4) Energy Return on Energy Invested (EROEI)
5) Execution time
6) Technology Readiness Level (TRL) of the conversion technology
7) Acceptance by stakeholders
8) Incorporation of hazardous materials
9) Use of non-renewable energy
10) Water use
11) Amount of waste generated
12) Generation of dangerous by-products
13) Emission of particulates to atmosphere
14) Contribution to the greenhouse effect

Resources



Life Cycle Analysis (LCA)



The results of CONVERTE project are expected to be a useful tool:

⇒To reduce the complexity in the evaluation and decision making of forwarding the studied biomass resources towards energy;

⇒For future biomass certification purposes and legislative production.