

# Task 42: Biorefinery

## IEA

The International Energy Agency (IEA), operating within the Organisation for Economic Co-operation and Development (OECD), aims to promote:

- Systems for coping with oil supply disruptions
- Rational energy policies
- An oil market information system
- Improved energy supply and demand structures
- Integrated environmental and energy policies.

## IEA Bioenergy Task 42

IEA Bioenergy Task 42 Biorefinery is a new field with a large potential. To open up the biorefinery related potential, system and technology development are required. RD&D-programmes can link industry, research institutes, universities, governmental bodies and NGOs, while market introduction strategies need to be developed. Major outputs of Taks42 are:

- Biorefinery definition
- Biorefinery classification system
- Country reports describing and mapping current processing potential
- Platforms bringing together biorefinery stake holders (industry, policy, NGOs, research).

## Participants

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## Definition of Biorefinery

Biorefinery is defined as the sustainable processing of biomass into a spectrum of marketable products and energy. The definition includes the following aspects:

- *Biorefinery*: concepts, plants, processes, industrial clusters
- *Sustainable*: maximising economics, minimising environmental impact, linking social aspects, fossil fuel replacement, closed-cycles
- *Processing*: upstream processing, transformation, fractionation, thermo-chemical and biochemical conversion, extraction, separation, downstream processing
- *Biomass*: wood and agricultural crops, wood, straw, organic residues, forest residues, aquatic biomass
- *Spectrum*: multiple energetic and non-energetic outlets
- *Marketable*: a market is expected to become available, taking into consideration both market volumes and prices
- *Products*: intermediates and final products, i.e. food, feed, materials, and chemicals
- *Energy*: fuels, power and heat.

## Classification system

A classification system was developed describing *platforms*, *products*, *feedstock* and *conversion processes*. *Platforms* (e.g. sugars, syngas) are intermediates which connect biorefinery systems. *Product groups* include energy (e.g. bioethanol, synthetic fuels) and materials (e.g. chemicals, food and feed). Main *feedstock groups* are agricultural energy crops (e.g. starch crops, short rotation forestry) and residues from agriculture, forestry and industry (e.g. straw, bark, wood chips). Main *conversion processes* are biochemical (e.g. fermentation), thermo-chemical (gasification), chemical (synthesis, esterification) or mechanical (pressing). Examples of classifications are: 'C6 sugar platform biorefinery for bioethanol and animal feed from starch crops'; or 'syngas platform biorefinery for FT-diesel and phenols from straw'.

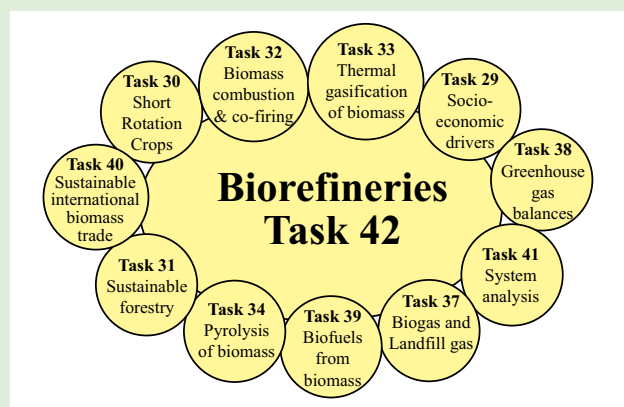


Figure 1: Role and position of Task42 among other Biomass related tasks of IEA.