
Sustainability assessment of biomass-to-energy processing chains scenarios: a necessity for decision makers

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Abstract

Biomass-to-energy can take various forms as biomass to gas or liquids, power production, heat production or combined heat and power production. Biomass-to-energy can be issued from different origins like agricultural activity, food processing industry, or waste treatment. Assessing a biomass-to-energy processing chain can be very difficult to achieve. For example:

- the conversion of biomass into energy may be in competition with other conversions scenarios as biomass-to-products where the products can have low or high values.

- the composition and properties of the biomass is a key factor to its valorization: water, oxygen, heavy metal, pops contents are highly discriminating for biomass to energy use.

- the sustainability assessment should include both economical and environmental aspects which may be difficult to achieve, either because information may be unavailable or available at small scale.

- biomass-to-energy is influenced by the mass balance and energy efficiencies of the processing chain e.g. crop yields, dewatering or drying efficiency, ...

- a biomass-to-energy processing chain is highly sensitive to the scenario chosen: storage, transport, distributed or concentrated.

The presentation will show some examples of energy processing chains, scenarios associated and sustainability assessments related to these scenarios.

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