

Bioenergy

Fact Sheet



What is Bioenergy?

Bioenergy is a form of renewable energy that comes from materials derived from recently living organisms including plants, animals and their byproducts.

The energy contained in biomass is energy from the sun captured through photosynthesis.

There are 2 types of bioenergy biopower & biofuel

Biopower is electricity generated from combustion of biomass or gas generated by methane generating micro-organisms digestion.

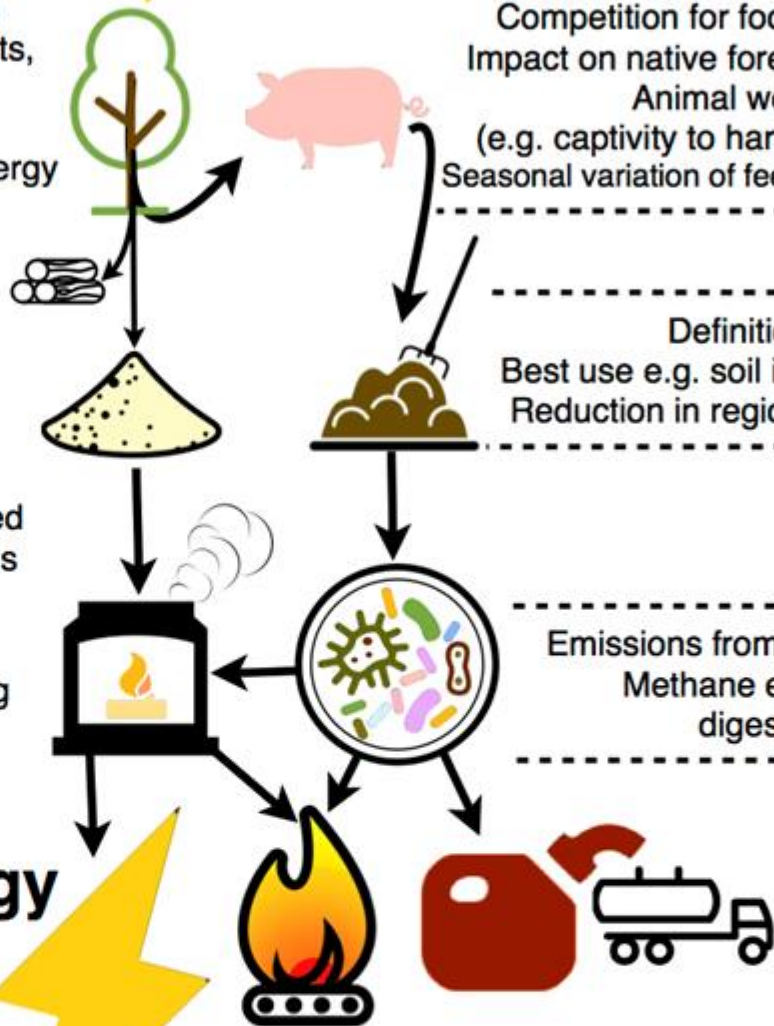
Biofuel is the a term commonly referring to biomass-derived liquids and gases typically used in transportation.

What are the Risks?

Competition for food production.
Impact on native forests & wildlife.
Animal welfare issues -
(e.g. captivity to harvest manure).
Seasonal variation of feedstock supply.

Definition of 'Waste'.
Best use e.g. soil improvement.
Reduction in regional biomass.

Emissions from combustion.
Methane escape from -
digestion process.



Benefits of Bioenergy

If the quantity of biomass used is equal to amount that can be regrown, it is renewable indefinitely.

There is potential for local jobs and skills.

Local supply increases regional energy security.

Bi-products of production can have high agricultural value.



Conversion of natural areas to energy cropping,
Agricultural expansion and competition for land use.

Unsustainable practices such as over harvesting,
Poor use of fertilisers and pesticides, Water and soil
conservation especially on marginal lands.

Transport issues - transportation (e.g. of feedstocks)
will reduce carbon emission advantages

(The NR Biohubs project is specifically about biopower NOT Biofuel)



Why Biopower in the Northern Rivers?

The NR is highly dependant on fossil fuel (ie coal) based power which is generated outside the region. The very high uptake of rooftop PV grid-connected solar systems has only reduced this dependency by less than 10%.



The likelihood of attracting investment into large scale solar thermal or PV solar projects in the NR is limited by the less than optimal sunlight availability due to high rainfall periods, as well as the high cost of land in the region. Similarly, wind farms are not feasible due to low wind speeds across the region and again, the high cost of land.

Sustain Energy is interested in exploring the potential for bioenergy because the region has very high biomass capacity and it is one way of increasing the renewable energy component of our regional energy mix.

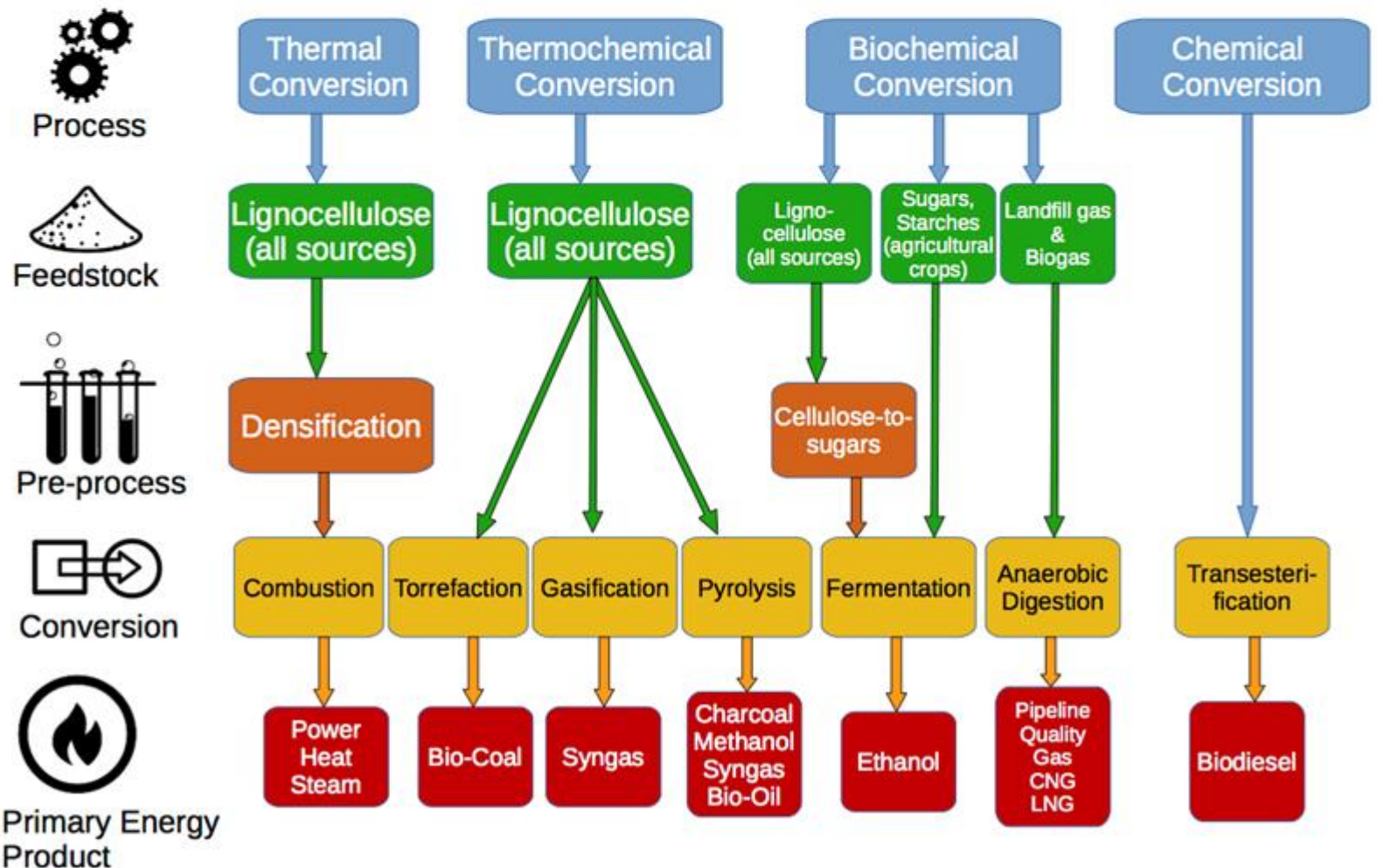
What materials can be used for Biopower?

Materials, known as 'feedstocks' can include the following:

- Sugar cane residues (also known as bagasse).
- Landfill gas (the methane produced by landfills).
- Agricultural crop and livestock waste.
- Household and municipal garbage.
- Sewage gas.
- Wood waste.



How is it made?



References and Sources