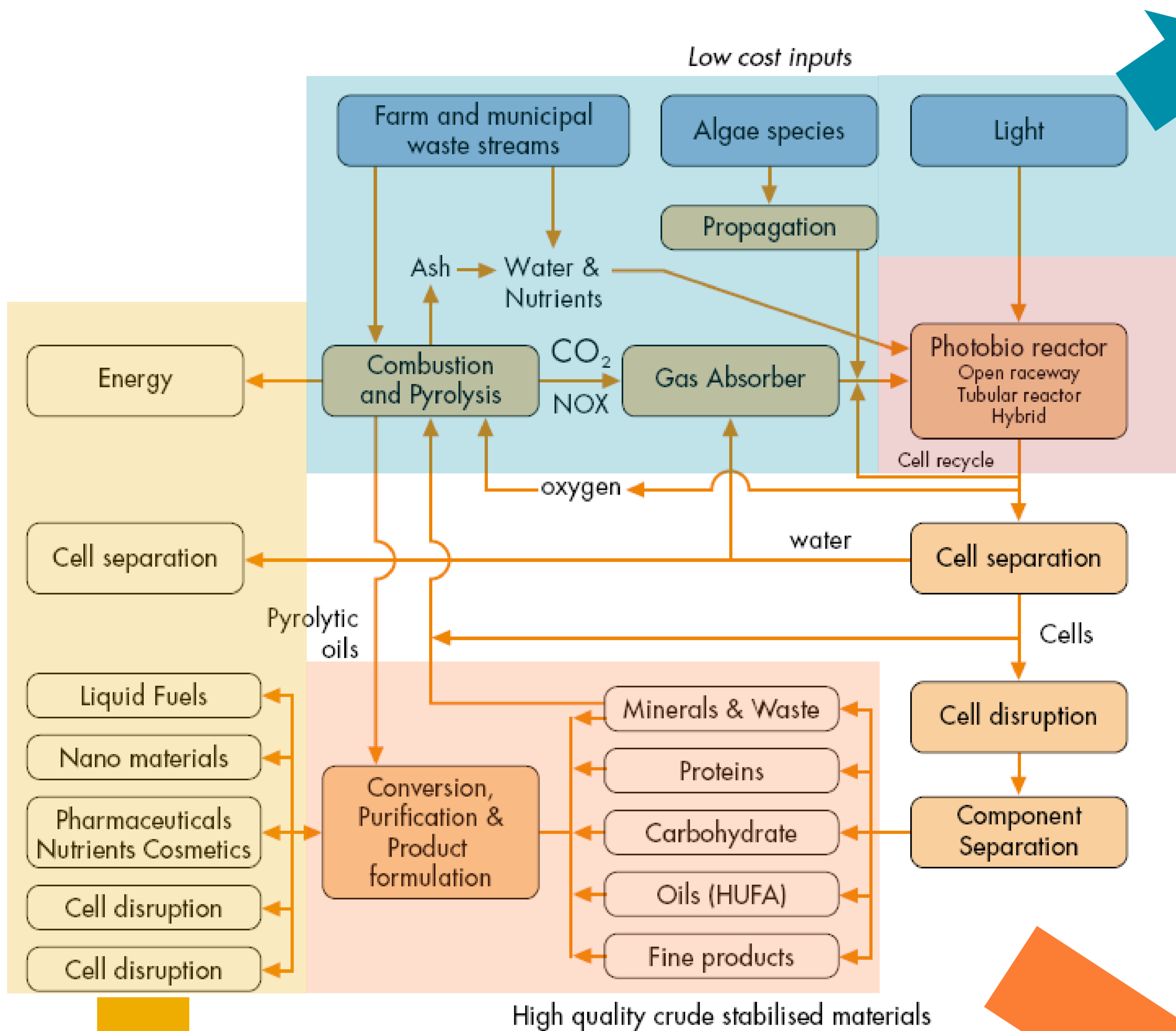


Algae power!

Maximising the potential of algae using a biorefinery approach

In a **biorefinery approach** all components of the algae are used in the process of production, either to supply a product or as an energy source or sold as additional products. This reduces the cost of algal biotechnologies and improves their sustainability.



Bioremediation

Mitigation of Greenhouse Gases (GHGs):

One of the key advantages of using algae is that they are able to withstand high concentrations of CO₂ and gaseous nutrients during culture. As such, algal growth platforms can be **used to capture CO₂**, nitrogen oxide and sulphur dioxide from flue gases from power stations and other industry.

Remediation of waste water resources:

Wastewater generated from agricultural, industrial and domestic sources often contains high concentrations of organic matter, nitrogen, phosphorous, heavy metals and is in plentiful supply. Processing of these wastes represents a serious environmental challenge and requires costly treatments.

Algal growth systems utilising these waste streams as a cheap source of nutrients represent a more sustainable strategy compared to other treatment processes.

Biofuels



Algae powered car, by Sapphire Energy (sapphireenergy.com)

Many species of microalgae have high lipid contents that can readily be extracted and converted to biodiesel. Similarly, their high content of fermentable sugars makes them suitable for bioethanol production.

Microalgae can generate a whole suite of bioenergy products:

- ◆ Biodiesel
- ◆ Biobutanol
- ◆ Biogasoline
- ◆ Methane
- ◆ Ethanol
- ◆ Straight Vegetable Oil (SVO)
- ◆ Aviation fuel
- ◆ Hydrocracking to traditional transport fuels

A recent breakthrough in making biofuel from seaweed provides another potentially viable source of algal-based biofuels.

Everyday algae & high-value products

Applications for food, animal feed, materials (e.g. replacements for petrochemicals), speciality products and in bioremediation services are generally more advanced than fuel applications.

Useful substances in algae include:

- ◆ Amino acids
- ◆ Proteins
- ◆ Antioxidants
- ◆ Pigments & Carotinoids
- ◆ Vitamins
- ◆ MMAs for light protection (absorb UV)
- ◆ Toxins
- ◆ Polyunsaturated fatty acids (PUFAs)
- ◆ Sterols
- ◆ Antifungal, antimicrobial & antiviral agents

See our algae products display for a list of everyday products containing algae. Here's a small sample...



Email: info@enalgae.eu

Web: www.enalgae.eu

Twitter: [@EnAlgae_NWE](https://twitter.com/EnAlgae_NWE)