

ALGAE BIOFUELS

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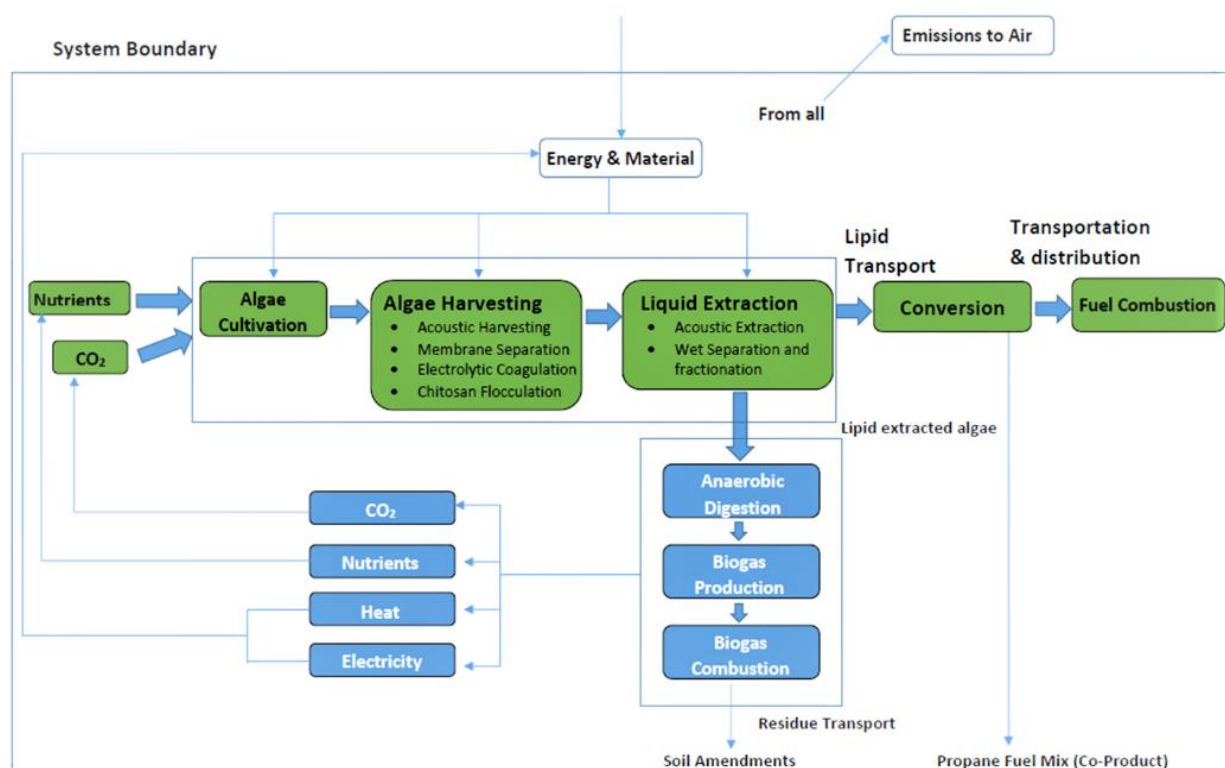
Introduction:

According to International Energy Agency (IEA), estimated of 9500 Million Tonnes of oil was consumed from 1971 to 2014.

Now the future....!

Algae are the tiny factories that use photosynthesis to transform sunlight, water, CO₂ into algal biomass (60% energy-rich lipids).

Process Flow Chart:



- Solvent extraction usually done by n-hexane in a Soxhlet extractor.
- Chitosan is relatively best flocculant compared to lime & alumnus sulfate.
- Dry extraction includes advanced drying followed by hexane extraction.
- Yield: 85%

Best case scenario:

Flat plate photo bio-reactor, Chitosan flocculation, Supercritical methanol combined extraction and transesterification.

Life cycle assessment:

- Cultivation system, species of algae, source of nutrients and location of cultivation.
- Operational costs: Photo Bio-reactor > Open Pond > Raceway pond system

Conclusion:

- Algae bio-fuel has relatively lower calorific value compared to petrol.
- Efficient ways of production are still to be developed.