

# Highlights/breakthroughs

1. Microalgae have demonstrated to be suitable for the treatment of different residual streams, as contaminated water but also gases
2. The efficiency/robustness of the processes has been improved in the last times approaching the technology to be competitive with conventional processes
3. Microalgae based technology can be incorporated into the portfolio of “options” for residual streams treatment, microalgae biomass being a by-product of the process
4. Large amounts of cheap biomass can be produced on this way it being necessary to clarify market and legal aspects about the utilization of this biomass

# Focus points for future research

1. Removal of contaminants is the objective of the process.  
Optimization of the design/operation conditions still can improve the yield of the technology maximizing the capacity of water treatment
2. Microalgae/bacteria consortia is the core of the process.  
It is necessary to characterize/study this consortia and to know how to manage it to “control” the performance of the system
3. Large amount of microalgae biomass can be produced.  
Up to 1 kg of dry microalgae biomass can be produced per m<sup>3</sup> of wastewater, then it is necessary to define/develop optimal “utilization” processes for this biomass

# Sewage treatment with microalgae

European Demonstration projects

Production of bioenergy and wastewater treatment



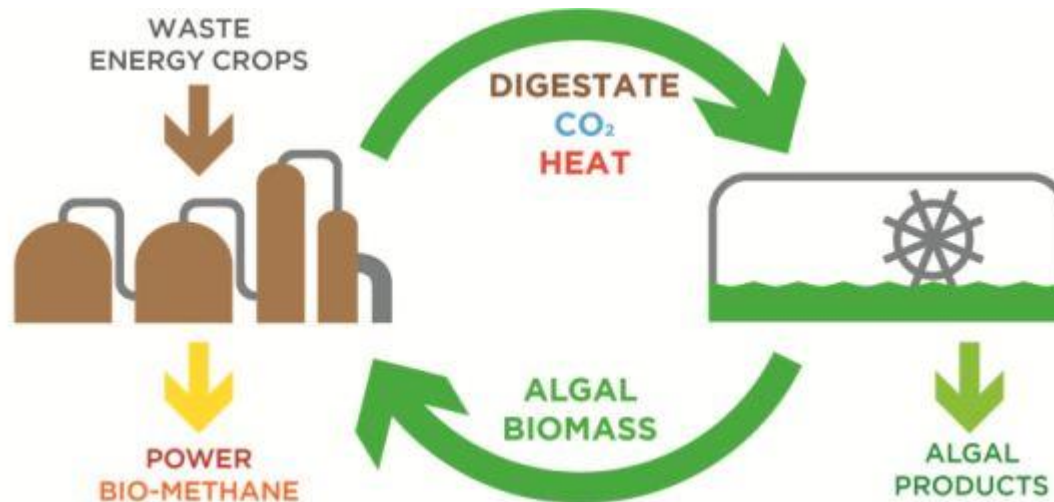
Demonstration projects are currently carried out on this field to improve the technology and demonstrate their efficiency at large scale (10 ha)

# Animal manure treatment with microalgae

## European Demonstration projects



AlgaeBioGas project is focused to market introduction of algal-bacterial treatment of biogas digestate and feedstock production, an innovative technology which has significant economic and environmental benefits to biogas operators.



There are several projects on this field, still the technology being under development due to different bottlenecks (N/P ratio, turbidity, etc..)