

# AquaGreen



Biomass  
treatment

A man in a dark suit and glasses stands on a metal walkway overlooking a large tank of brown biomass sludge. The tank is filled with a thick, brown, textured sludge. The walkway has a metal railing. In the background, there are trees and a clear sky. A teal shape is overlaid on the left side of the image, containing the text 'Biomass treatment'.

Turn your biomass  
into a resource


# The AquaGreen vision



The world is threatened by a climate crisis, environmental pollution problems, as well as scarcity of critical nutrients such as phosphorus. Introducing the AquaGreen technology on the market, we address these challenges and aspire to fulfill our vision to *"lead the global transformation of processing and re-circulating resources from biomass"*.

Claus Thulstrup  
CTO, AquaGreen

Henning Schmidt-Petersen  
CEO, AquaGreen



## Upcycle your biomass

### Upcycle your biomass with AquaGreen Technology

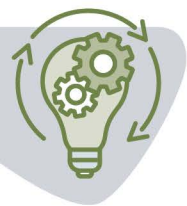
With AquaGreen's patented, ground-breaking technology you dry and pyrolyse your sludge or wet biomass by using the energy of the biomass itself. This is possible due to the unique integration of steam drying and pyrolysis. Hence you turn your wet biomass into a resource.

As the AquaGreen process is continuous and fully automated, you need minimal manpower for operation. The technology is developed and patented in close collaboration with DTU, Technical University of Denmark.

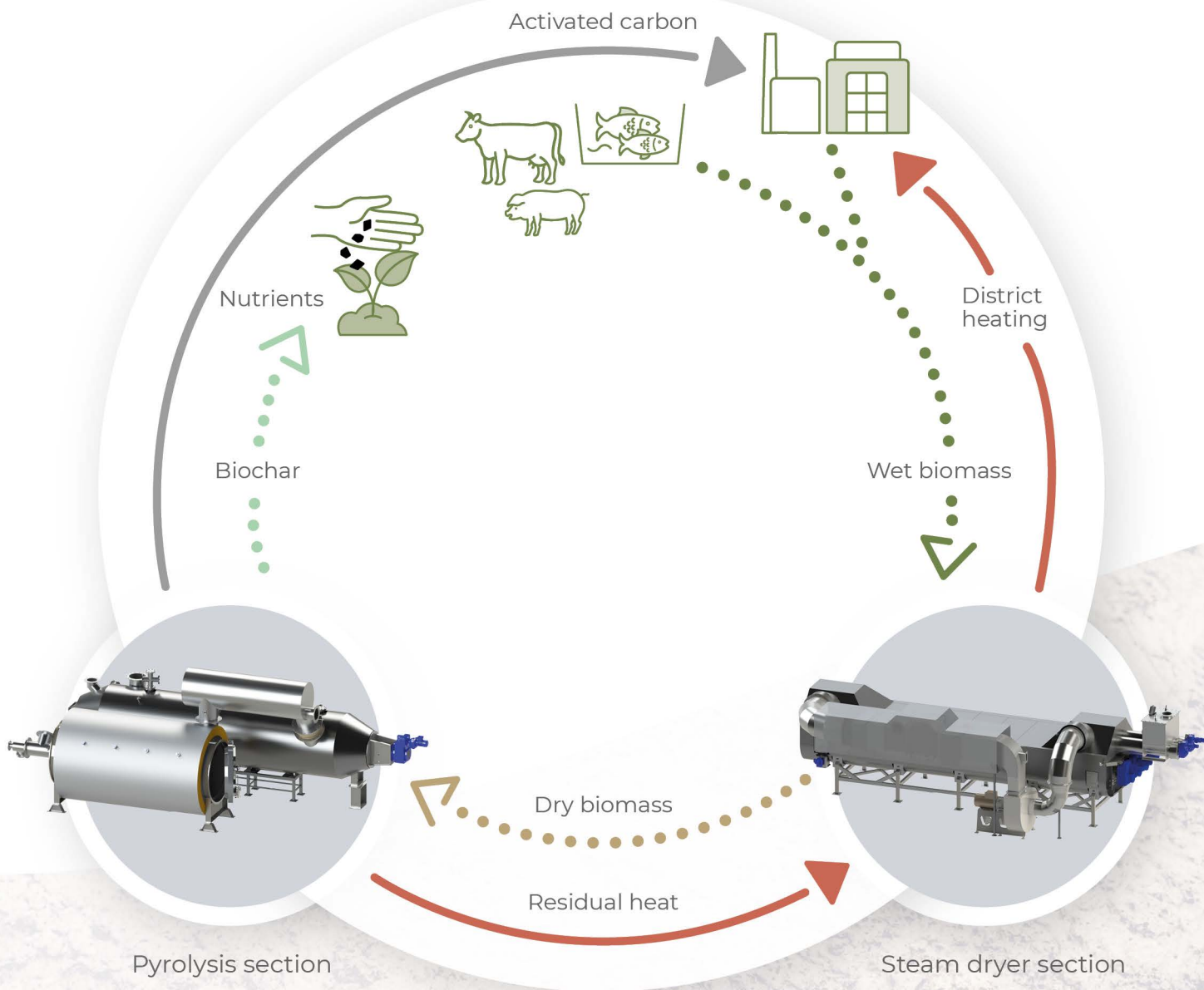
### The AquaGreen Technology is applicable in industries that generate biomass waste:

- Municipal and industrial waste
- Agriculture (livestock manure and other organic waste)
- Horticultural waste
- Pharma and biotech, food, and beverage industries

In case you have any questions about the AquaGreen technology and implementation, please do not hesitate to contact us at [contact@aquagreen.dk](mailto:contact@aquagreen.dk) or +45 53 660 888.



## The patented AquaGreen Technology: Integrated steam drying + pyrolysis



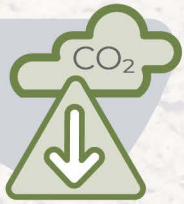
### The pyrolysis section:

In the pyrolysis process the dried biomass is heated to 650°C in an oxygen-free atmosphere. The pyrolysis generates gasses which are combusted. The produced thermal energy is used for both the drying and the pyrolysis process. The biochar is hygienised, storage-safe and odour-free.

### The steam dryer section:

Dewatered biomass is dried in an oxygen-free atmosphere with superheated steam at 200°C. The surplus steam is condensed, recovering the thermal energy for local- or district heating. There is no malodour from the process. The dryer section is specifically designed and proven to master wet biomass drying with a minimal footprint.

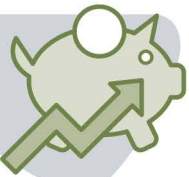
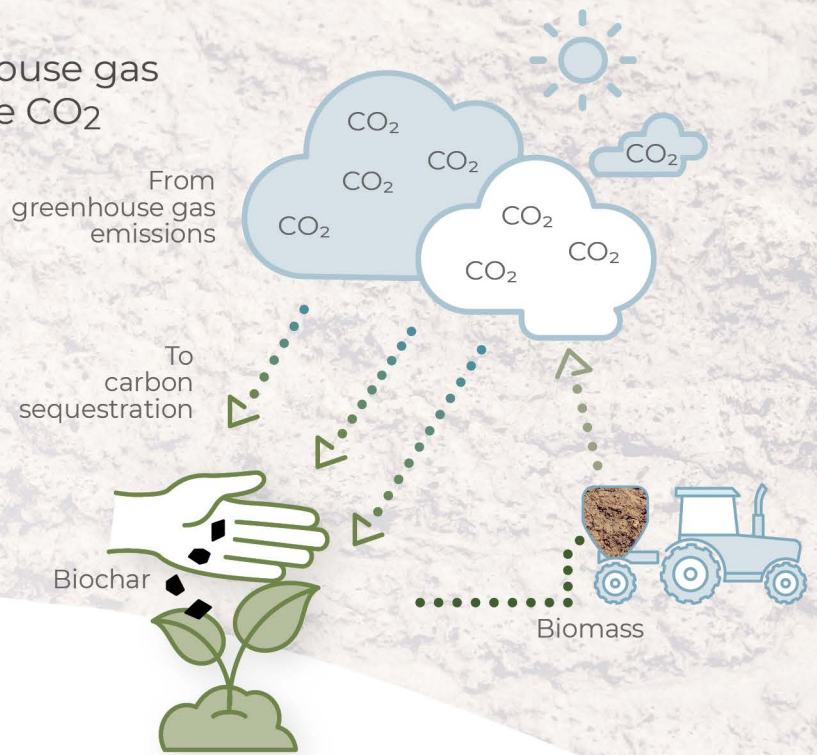
## With AquaGreen's unique technology you get several benefits:



### You eliminate greenhouse gas emissions and capture CO<sub>2</sub>

When biomass is stored and spread on farmland, CO<sub>2</sub> and more potent greenhouse gasses are released. In contrast, with AquaGreen's treatment process you avoid gas emissions, and you capture and store CO<sub>2</sub> in the biochar.

Hence, by turning your biomass into a resource, you contribute to a positive climate impact.



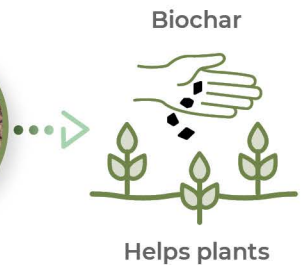
### You reduce cost and generate revenue

The AquaGreen process turns your biomass into biochar reducing the weight with up to 90%. Furthermore, the process is fully automated, continuous and require very little manpower. As a result, disposal, logistics, operational, and environmental costs are reduced accordingly.

The AquaGreen process generates renewable thermal energy and soil-improving biochar, which can be upcycled into activated carbon, whereby the value of the end-product increases. Biochar captures and stores atmospheric carbon (CCS) enabling income via sales of carbon removal credits as well as CSR and PR value.

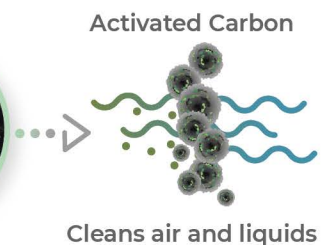
**Savings**

- Disposal costs
- Logistic costs
- Operational costs
- Environmental costs



**Profit**

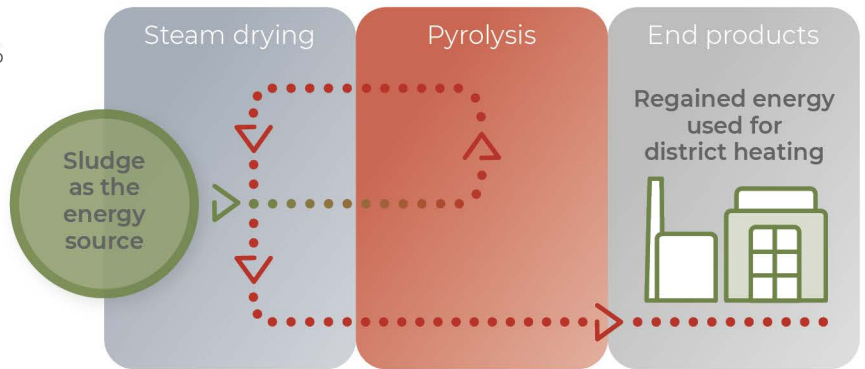
- Thermal energy
- Biochar
- Activated carbon
- Carbon removal
- CSR and PR value





## You recover energy

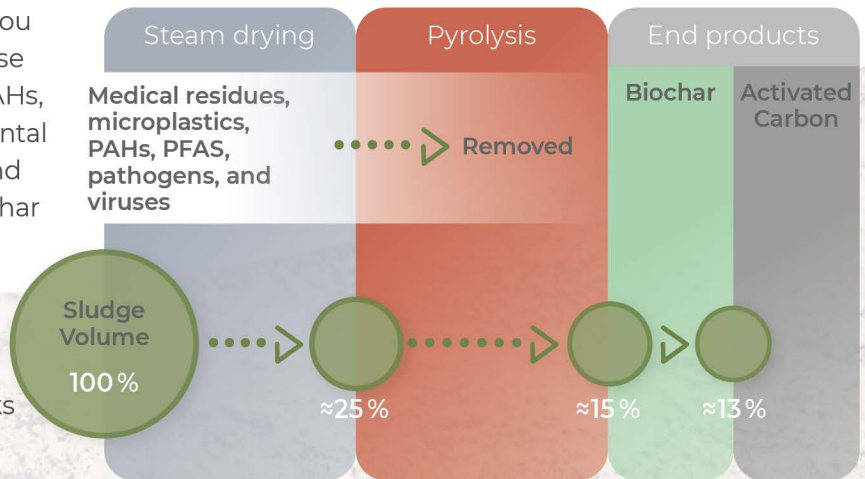
In the AquaGreen process, 70-80 % of the produced thermal energy is regained, and the calorific content of the biomass is utilised for its own drying and pyrolysis. Excess renewable energy is recovered as hot water, which you can use locally or sell for district heating.



## You reduce pollution and health risks

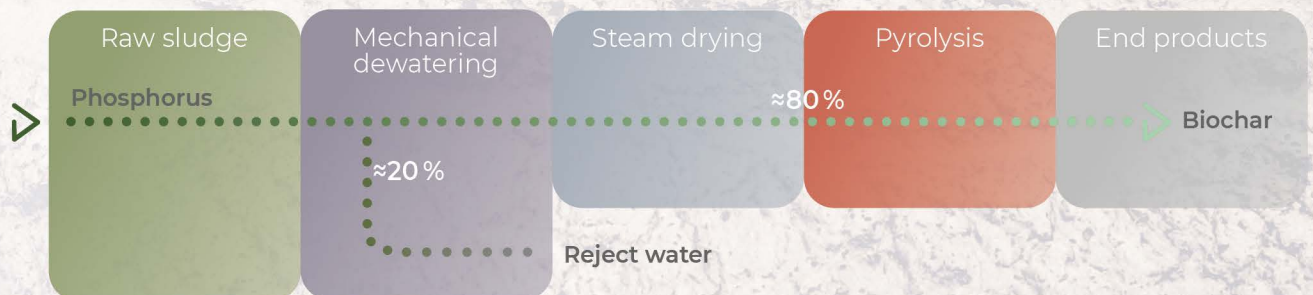
With the AquaGreen technology, you stop groundwater pollution because medical residues, microplastics, PAHs, PFAS and other organic, environmental pollutants, as well as pathogens and viruses, are eliminated. As the biochar is odourless, there is no bad smell from the biomass on farmland.

Furthermore, heavy metals are captured and removed during the process. All this reduces health risks for your citizens.



## You recirculate nutrients

The biochar is rich in plant-available nutrients such as phosphorus, which is a scarce resource and critical as an agricultural fertiliser.



**Odsherred Utility Company** has invested in AquaGreen's environmentally friendly technology for treatment of sewage sludge.



*"To me it makes no sense that we as a utility company pay a lot for spreading sludge on farmland, where it gives rise to odor problems. And further emerging pollutants such as microplastic, medicine residues and for example PFOS, harm the environment. I want to protect our common groundwater, our environment and ensure a better future for our descendants. That is why we have chosen to invest in AquaGreen's technology."*



Fanny Villadsen  
CEO, Odsherred Utility Company

## **AquaGreen is an R&D engineering company in the cleantech industry**

AquaGreen's vision is to *"lead the global transformation of processing and re-circulating resources from biomass"*.

Together with the Technical University of Denmark (DTU), AquaGreen has developed a patented technology that turns biomasses into a resource. This unique technology is being implemented at several plants in Denmark.

The technology is based on superheated steam drying and pyrolysis in an integrated energy efficient process. The calorific content of the biomass is utilised for its own drying and pyrolysis, and the biomass is converted into an odourless biochar product that is rich in nutrients and captures and stores carbon/CO<sub>2</sub>.

### **With AquaGreen's unique technology you get several benefits:**

- You eliminate greenhouse gas emissions and capture CO<sub>2</sub>
- You reduce pollution and health risks
- You recover energy
- You recirculate nutrients
- You reduce costs and generate revenue

Please feel free to contact us if you need any further information about AquaGreen and our solutions for biomass treatment.



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