

strategi **STRATEGY**

Copenhagen's ambitious energy goals offer room for a new perspective on the cycle of energy usage by cities. The inclusion of local conditions for the city's energy strategy has the potential to be of significant value for the carbon neutral goals to be achieved by 2025 by integrating the nearby local water treatment facility in the fabric of energy.

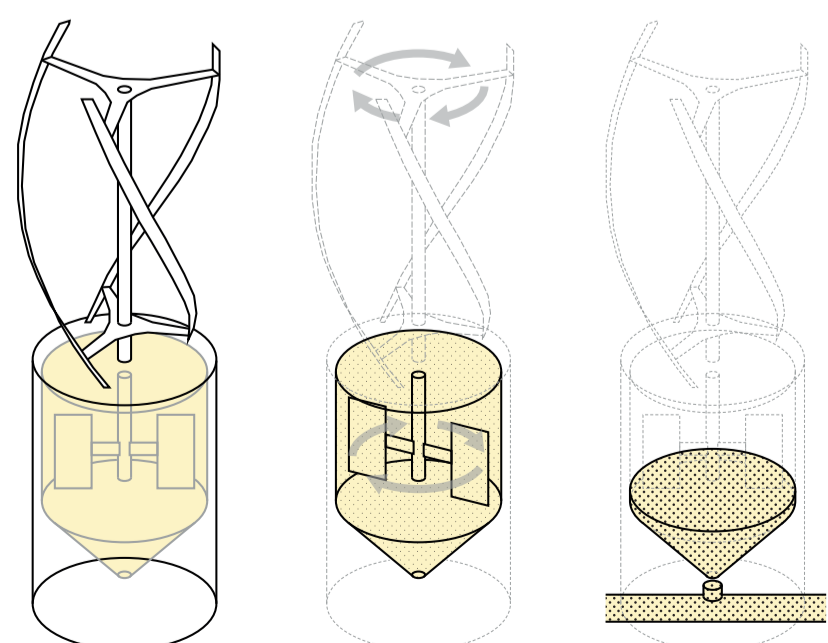
This proposal envisions a holistic approach to energy for Copenhagen, with its gravity point in Refshaleøen. City Cycle advocates the use of algae in combination with the nutrients found in urine, creating energy from waste. The two key aspects are integrated in one design of landscape and building that house not only the functional aspects of energy production but also foster educational aspects, making it both a visible and visitable entity.

Algae is a renewable resource that grows rapidly and of which the production has zero impact on the world's food supply, and contributing to the 2025 goals, growing and cultivating algae actually draws greenhouse gases out of the atmosphere. Final products are energy, biomass, and biofuel.

Struvite is used as a fertiliser for the algae. It has a highly concentrated nutrient content of potassium, phosphorus and nitrogen. The only readily available organic source of these nutrients is urine. Density of people, thus urine, is highest in cities and therefore Copenhagen offers a radical opportunity for a change in how we can move from recycling to upcycling in terms of waste disposal. As outlined below, the manufacturing process is simple, and if integrated with the water treatment facility offers a complete approach for energy production with added benefits such as water improvement.

energi **ENERGY**

struvit **STRUVITE**



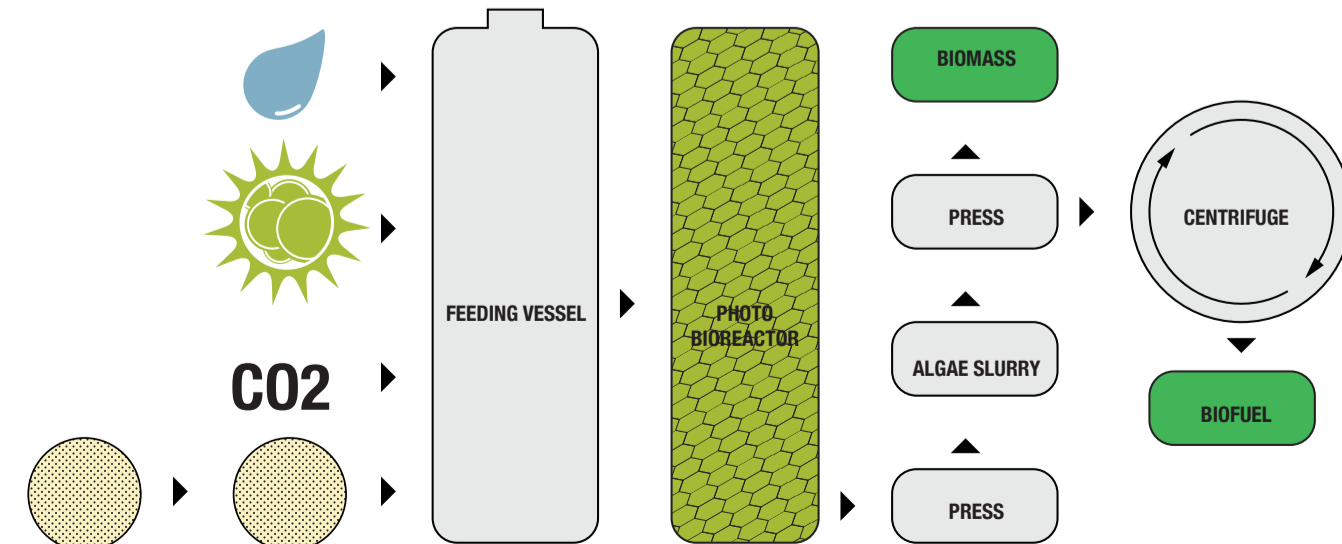
fill reactor with urine from
Lynettebakkeskabet

add magnesium and
activate string via vertical
wind turbine

open valve and
filter struvite

sundry struvite

alger **ALGAE**



CO2

add water, algae, CO2, and
nutrients to vessel

produce energy
with photovoltaic
algae

produce biomass and
biofuel from algae

