



European
Commission

SUNALGAE for LIFE: 'Nature is our most experienced engineer'

An innovative process of enhancing the efficiency of solar panels through the use of algae

Enhancing the use of solar energy by algae

The growth in solar energy capacity exceeds the [growth in total energy demand globally](#). However, this renewable type of energy is still strongly dependent on governmental regulations and incentive programmes due to [high costs and low efficiency](#). Innovations are thus concentrated on lowering costs and improving efficiency to further foster demand.

Furthermore, the expansion of the [utilisation of renewable sources of energy is crucial in ensuring the security of the EU energy market, stability of electricity prices](#), and fulfilment of EU Green Deal objectives.

Diatoms everywhere

In 2016, Swedish Algae Factory (the coordinating beneficiary) was founded with the vision of showcasing the [power of algae as a raw material](#) and the potential of creating a climate-positive business using algae. The beneficiary then secured funding from the LIFE programme to be the first-of-a-kind project to extract and [utilise the shell of an algae group called diatoms on a larger scale for solar panel efficiency-enhancing applications](#).

In a new pilot facility constructed to produce the innovative algae material that uses recycled nutrients from a land-based fish farm, the beneficiary [developed the ALGICA® material](#), which could be utilised in [multiple applications and industries](#). The LIFE programme contribution also enabled the beneficiary to explore additional applications of the material outside the original scope of focus – solar panels.

The ALGICA® material stands out due to its unique attributes such as [efficiently trapping visible light, absorbing, blocking and releasing chemical substances, and ensuring extreme durability, stability and high consistency of quality](#).

Over time, the outputs of the project were able to find a wider use in society, from various types of [personal care and lithium-ion batteries](#) to the original purpose - solar panel applications. The whole production process used in the project is based on total circularity without producing any waste. By cleaning nutrient-rich water from the food industry, nutrients are recycled and clean water is transferred back to food production. Organic biomass remaining after extraction is re-used to produce energy, fertilisers and feed.

Climate positive (a message from Sofie Allert and Angela Wulff, founders of Swedish Algae Factory)

"Our vision is to prove that it is possible to create an industry that is positive for the climate, not just less negative. With algae we found a way of achieving this."

Learn more

Project acronym: SUNALGAE for LIFE

Reference: LIFE17 CCM/SE/000050

[Project website](#)

Do you want to benefit as well from support to commercialise your innovative solution?

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