

Solar Foods Oyj, press release 18 March 2025 at 4:00 EET

Solar Foods announces an investment plan for Europe's single largest emission reduction moonshot project

The Finnish food technology company Solar Foods announces factory investment plan, which, if realised, would according to the company's estimation be the largest emission reduction project in Europe. The plan includes the already announced plan for Factory 02, with an option to build two more production facilities, Factories 03 and 04, on the same site. If this plan were realised, the Solein produced at these factories would have significant environmental and economic impact.

Solar Foods produces Solein®, a protein-rich food ingredient, using carbon dioxide and electricity as the main raw materials. Solar Foods' demonstration facility Factory 01 has already proven how the production works at scale.

Earlier, Solar Foods announced that it has signed a Memorandum of Understanding (MoU) with two international customers for commercialization plan of altogether of 6,000 tonnes of Solein per year. Should the collaboration lead to a binding agreement, the total volume commitment of 6,000 tonnes would correspond to approximately 50% of the full production capacity of Factory 02. In February, Solar Foods announced that it has initiated the pre-engineering of its Factory 02 with an annual capacity of 12,800 tonnes. Therefore, the company is now exploring the option of constructing not only one but three facilities, Factories 02, 03 and 04, at the same location. The company has been evaluating suitable locations and has found one in Lappeenranta, Eastern Finland, that fulfils the requirements and is quickly executable, and for which the company is now preparing an implementation plan. The investment decision is expected to be made during 2026.

Once operational, the three factories could produce 50,000 tonnes of Solein per year. This would consume an estimated 120,000 tonnes of CO₂ per year and 270MW of electricity as the main raw materials. Based on a lifecycle analysis study*, Solein's environmental impact is approximately 1% of beef production. Thus, if Solein would replace beef meat in the food system, the three factories enable a greenhouse gas emission reduction as substitution benefit in the order of 10 million tonnes CO₂ equivalent per year. This is equivalent to approximately 25% of Finland's annual emissions in 2023**, or almost at par with Finland's annual road transport emissions (9Mt).

Factories 02-04 would strengthen Finland's globally leading position in cellular agriculture. Solein production can also improve strategic food security, self-sufficiency, and price stability, as it is independent of land use, climate and weather conditions and is not dependant of rare earth elements. Unlike many other high-volume industries, Solar Foods' production can benefit from domestic sources of feedstock, e.g. clean energy, CO₂, water, and skilled labour, making the domestic content of the product high. Solein's Ratio of Domestic Production is estimated at over 80%.

Also, the economic value, and the potential contribution to Finland's export of goods, would be significant. The value of the production from the three factories is estimated at EUR 800 million annually, assuming Solein's price per kg is the same as the price of whey protein isolate. This is equivalent to 50% of the Finnish food, beverage and tobacco sector's 2025 goods exports***.

“According to the company’s estimation, this is to date Europe’s single largest emission reduction project. The economic value and contribution to Finnish exports of this plan are significant, considering the factories would create a whole new sector in the Finnish economy, as well as a high-tech industry”, says **Pasi Vainikka**, the CEO of Solar Foods.

Sources:

* The CO2 emissions of producing 1 kg of Solein is equivalent to producing 200 kg beef. Read more about the [LCA calculation](#) and [a comparative study of food](#). Life cycle assessments may contain a certain degree of uncertainty.

** Greenhouse gases, Statistics Finland, 2025

*** Finland’s Total Goods Exports, Technology Industry, 2025

Further Information

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[Read more about the investment plan on our website.](#)

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About Solein®

Solein is an all-purpose protein grown with the air we breathe: The unique bioprocess takes a single microbe, one of the billion different ones found in nature, and grows it by fermenting it using air and electricity and thereby converting carbon dioxide to protein. Solein is a nutritionally rich and versatile ingredient which can replace protein virtually in any food. Solein can also be used as a fortifier to complement the nutritional profile of various foods: it can be a source of iron, fiber and B vitamins, and it can also bring different techno-functionalities into food products. www.solein.com.

About Solar Foods

Solar Foods produces Solein®, a protein created using carbon dioxide and electricity. This innovative production method is independent of weather and climate conditions, eliminating the need for traditional agriculture. Founded in Finland in 2017, Solar Foods is listed on the Nasdaq First North Growth Market Finland. Learn more at www.solarfoods.com and investors.solarfoods.com.



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